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# TELEPHONE ENGINEER

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*Volume XXII* *JULY, 1919* *Number 1*

Published Monthly, at 53 West Jackson Boulevard, Chicago, Illinois, $2.00 per year.

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PAUL H. WOODRUFF, Editor
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VOL. XXII CHICAGO, JULY, 1919 NO. 1

## The Best Independent Convention

THE big convention was all that its most sanguine supporters could have anticipated. That is more than could have been said about any Independent convention that has been held for the last four or five years, anyway. Not since the old days, when the chief aim of Independent telephony was to get the Bell "on the run," has there been so much activity and "pep" displayed; not since convention reports were triumphant records of Independent success over the "enemy" has there been evidenced so much of buoyant spirits and general good feeling. "New Era" is obviously correct; and the new era has already started.

Around the crowded corridors of the convention floors, and in the congested lobby of the hotel, the old comments about the telephone business being "dead from the neck up" were conspicuously absent. To all the hundreds of operators and employes and manufacturers' representatives present the telephone business certainly looked this time like a good business, and a big business, and a live business, and all in a superlative degree. Everybody is not only busy now, but is looking forward, with the joy of the eager worker, to the prospect of being more busy—unprecedentedly busy—very soon.

Labor troubles still threaten, and various problems of compensation remain unsolved, while the stability of just rates is not yet entirely assured; but all these things promise not so much of worry as of chance for a good, lively, honest fight, which is really an enjoyable thing when a fellow is "on his own"!

The convention did an extraordinary amount of good; not so much for what it accomplished and what it taught, though those items were of more than ordinary value, as for its inspirational influence. In this one element its effect was supreme. Enough ambition and determination went home from that gathering to establish a new industry or rehabilitate an old one and multiply its efficiency to the "nth" power.

## The Bureau of Standards

TOO few business men, engaged in technical lines, know anything definite about the United States Bureau of Standards. The telephone representative of the bureau, Dr. F. A. Wolff, has become in the last few years a familiar figure around Independent conventions, and always he brings a contribution of great value to those who will make the effort to apply it. His paper on this occasion, "Why Standardize?" we take pleasure in publishing, and recommend its careful reading.

The bureau is really a remarkable institution, and its genuine spirit of helpfulness is personified in its telephone chief. Even those who, as yet, are little in sympathy with a standardization movement can gain, by reading the paper, some idea of the facilities that are virtually placed at their disposal.

## Automatic Service in Chicago

THE announcement by President B. E. Sunny of the Chicago Telephone Company that downtown Chicago may soon be served by automatic telephone switches, instead of girl operators, will probably be received with some surprise by telephone men who have an impression that the Bell organization is averse to innovation. The project has the superficial appearance of newness, as though the decision were sudden; but it is a fact that the company's great new building, just completed, was constructed with automatic equipment in view, as is demonstrated by its exceptional provision for dust-proof operating rooms and other structural peculiarities.

Present activities of the company's engineers would indicate that the installation of the new equipment, and the cutover from some of the exchanges now serving the "loop" district of the city, might occur sooner than is realized. We hope to have a more definite communication to make in regard to this most interesting undertaking by another month.

## Order Your New Equipent Nov·!

THOSE who must inevitably buy, and yet are holding off and "stalling along" in the hope that prices will drop, are destined, we fear, to be disappointed. There is little chance that any commodity needed in telephone operating will be obtainable at lower prices for a long time to come. Labor forms the major portion of nearly all manufacturing costs—and labor is going higher, unless someone stops it. Unless you have a workable plan for reducing the wages of labor, and making them like it, better order what you need now.

# Teaching Telephony in the Army

*COURTESY OF THE "SOUTHWESTERN TELEPHONE NEWS"*

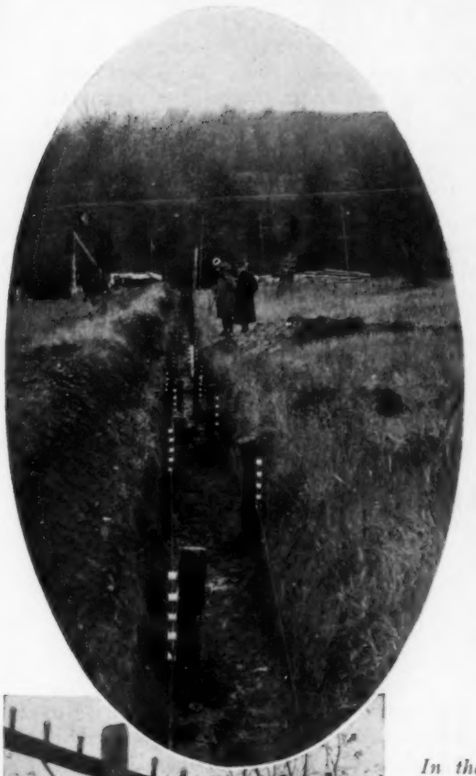
*The "army way" is considerably different from the company way. A while back the army way was to get results the quickest way possible. When it needed a likely-sized gang of telephone men in a hurry it quite naturally called on the companies; but even their generosity fell far short of th army's requirements. Then the army decided to make telephone men. So it set up three telephone "mills," though a more polite name would be telephone schools. These schools, nevertheless, were not unlike mills in their ability to grind out tele-*

*phone men. Their simple little war-time task was to transform 1,200 clerks, bankers, farmers, etc., who previously had no more than a speaking acquaintance with the telephone, into passable tele-*

*phone men suitable for Signal Corps work, in the startlingly short period of thirteen weeks. The schools were installed at the Universities of Michigan, Minnesota and Utah, the instructors being for the most part practical Bell telephone men. The accompanying photographs give a comprehensive idea of how these instructors at the University of Michigan, Ann Arbor, created a telephone school that gave results. The pictures were loaned by First Lieutenant G. I. Back, senior instructor at Michigan.*

*From the storeroom the student could obtain any tool or material necessary in any use of the telephone in war work. Fifty-three test sets were one item of the equipment! The intricacies of the cable were duly solved in the Cable Department,*

*where the farm-hand learned something besides stretching barbed wire. Splicing, pairing, preparing sleeves, boiling out, joint wiping, terminal installation and testing were included in the course. Inside and out the students worked. In the Line Department one of the first things taught was climbing. The rawest recruit after a few days' instruction could shin up a pole like any veteran. In the "field" the student had to*



*dig his own trenches, then wire them. Having done a good job, he tore done the construction and refilled the ditches. Yes, he even had to find his own poles. The pole construction in the picture might not be according to "specs," but it looks substantial.*

*In the Equipment and Instrument Departments they taught where to hook up the red wire in an 85-A set, and other things. Also the student was advised to shun the haybaler joint. When in doubt, the student-installer could step to the rummage board and take a squint at the in'ards of the thing. It helped a lot. And then they taught them how to pound out Morse. The instructor burned up the wire, and it was each student's job to transpose the messages just as sent.*

## Carlton Wants Joint Service

Amendment of the Sherman antitrust law so that telegraph and telephone companies can operate a joint service after the wire properties are released from government control was urged before the senate interstate commerce committee by Newcomb Carlton, president of the Western Union Telegraph Company.

"Authority should be given the Interstate Commerce Commission to approve such relationships between the wire companies as to popularize the use of both services," said Mr. Carlton. "In other words, you should waive the provisions of the Sherman act."

Mr. Carlton said he had no remedial legislation to suggest, as the Western Union was able to take care of itself after the government relinquishes control. He added, however, that he would like to see the United States at this time setting a worldwide example in the combined use of the telegraph and telephone services, with provisions making it mandatory upon all companies to participate. Such a plan, he said, would aid the country's prosperity.

Mr. Carlton declared the government made a grave mistake in 1914 in ordering the divorcement of the Western Union and the Bell company.

## John Wright's New System

On the last day of April, Jamestown, N. Y., witnessed the merging of physical properties of the Home and Bell companies onto one switchboard and into one unified system. At 10:40 p. m., at a signal given by John H. Wright, vice president and general manager of the Jamestown Telephone Corporation, which corporation succeeds to the telephone business of Jamestown, electricians stationed in the terminal room of the Home Telephone Company, on Pine street, began removing the fuses from the cable terminals in that office and at the same moment electricians in the office of the Bell Company on Third street began removing the temporary apparatus which had been placed in position in the terminal room of that company for the purpose of preventing the two systems from being connected until the proper moment when it was desired that the unified service should start.

It required one minute and 45 seconds to disconnect the four thousand subscribers of the Home Company from the Home switchboard and connect them onto newly assigned numbers in the switchboard recently installed in the Bell office to take care of the unified system. When the signal was given, the operators in the Home office left their places at the switchboard and marched to the Bell office where they were assigned positions at the new switchboard.

The new corporation will serve nearly 8,000 subscribers, of which about 6,400 are local connections within the city limits. It will enable about 275 Falconer subscribers of the old Home Company to talk with the former users of the Bel.

Free service to neighboring towns is to be given to Frewsburg, Lakewood, Falconer, Celoron and Bemus Point, or the same towns which were formerly served with this service.

The exchanges located in Bemus Point, Falconer and Frewsburg will be maintained. The Falconer exchange will be conducted the same as ever, all old Home users being served through that exchange, but being enabled because of the merger to talk with all former Bell subscribers.

The old Home Telephone building will be finished into offices where the business end of the company will be conducted.

The board of directors of the Jamestown Telephone Corporation is composed of N. R. Thompson, William M. Blackstone, William J. Maddox, John H. Wright and M. R. Stevenson, of Jamestown; Robert I. Izant, of Warren, O.; C. A. Spaulding and P. O. Jacobs, of Buffalo and T. P. Sylvan, of New York. The officers are: W. J. Maddox, president; J. H. Wright, vice president and general manager; W. M. Blackstone, secretary; M. R. Stevenson, treasurer; R. H. M. Reid, general auditor; L. E. Whiting, assistant secretary and treasurer.

General Manager Wright announced the promotion of Frank Stevens former wire chief of the old Bell Company to the position of plant supervisor in the new corporation, and Edward Riley, former wire chief of the old Home Company is made wire chief of the new corporation.

## Users Cautious with New Rates

Telephone calls from the residences of Chicago have fallen off 40 per cent since the new telephone rates went into effect on June 16, while the total of the city's daily calls has fallen off 10 per cent, according to a statement made by Horace F. Hill, vice-president of the Chicago Telephone Company.

"Of course, it is a little early to determine the actual effect of the new rates," said Mr. Hill, "but it is a fact that the total business has decreased 10 per cent, while that of some classes, such as the residence business, has dropped 40 per cent.

"The people have not yet decided what the change means, and they are acting cautiously until they learn. When they receive their first bills under the new rules they will know how to govern their use of the telephone, and business probably will increase a little.

"Many of our subscribers will, if they are careful, find their bills are less than they were under the old schedule, as, for instance, on residence single-party lines, which now are $3.50 a month for seventy-five calls as against $6 under the old rate."

## Southern Bell Has Loyal Employes

An association of telephone company employes, with no affiliations with the union which had called a strike, was virtually formed at a banquet of employes of the Greenville district of the Southern Bell Telephone Company.

The purpose of the association is to protect the interests of all employes of the company and to deal with the employes individually or collectively in a fair-minded manner.

Almost one hundred employes of the Greenville district were present at the banquet. They evidenced by their actions their approval of a union of employes, by employes and for employes; stated their appreciation of the fact that the company and themselves owe the public the same good service which has been given them in the past, and by their applause of the words of the speakers virtually promised to remain at their posts in case the strike order issued remained as it stood when the banquet was in progress.

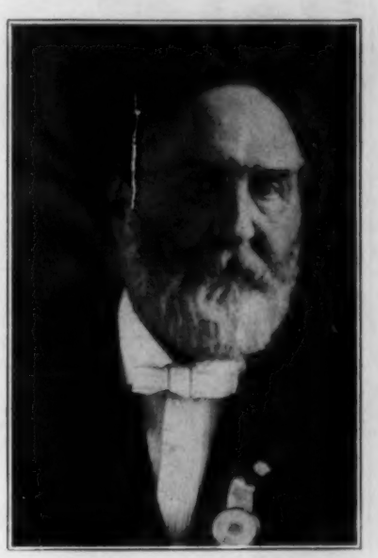
A man in a flying machine, 3,000 feet up, delivered a lecture by wireless telephone to the Institute of Electrical Engineers, gathered in a hall in London.

# MacKinnon Is Independent President

## *Nine Hundred Attend Enthusiastic "New Era" Convention*

*W. S. Vivian, Secretary-Treasurer*

*F. B. MacKinnon, President*



*E. B. Fisher, Chairman of the Board*

NOMINATED by Charles Y. McVey of Ohio, F. B. MacKinnon was unanimously elected president of the United States Independent Telephone Association on June 24. The association's "New Era" convention, which opened at the Hotel La Salle in Chicago on Tuesday, June 24, and was attended by some 900 delegates and visitors, was remarkable for its extraordinary atmosphere of cheer, optimism and good will.

Frank H. Woods of Lincoln, Neb., resigned from the Board of Directors and his unexpired term will be filled by L. E. Hurtz of the same city. E. B. Fisher of Grand Rapids, Mich., was reëlected chairman of the board of directors, and Capt. W. S. Vivian was returned to his post as secretary-treasurer for another term. Frank L. Beam of Ohio was made first vice-president; J. B. Earle of Texas second vice-president, and W. F. Goodrich, Wisconsin, third vice-president. The executive committee was reduced, by action of the directors, from eleven members to seven, including the president, who is empowered to name the other six. Mr. MacKinnon at once appointed G. W. Robinson, Minnesota; A. F. Adams, Missouri; C. Y. McVey, Ohio; H. Linton Reber, Missouri; L. E. Hurtz, Nebraska, and W. G. Brorein, Florida.

The finance committee is composed of H. L. Gary, Missouri; Frank A. Knapp, Ohio; W. F. Goodrich, Wisconsin; L. E. Hurtz, Nebraska, and S. M. Heller, Kentucky.

Retiring President Robinson proposed that officers hereafter be empowered to proceed with actions they deem necessary, and that fewer committees be appointed. A recommendation by C. C. Deering that a study of toll commissions be made with a view to standardization was referred to the executive committee.

The first convention session opened at two o'clock Tuesday afternoon, with President Robinson in the chair. Rev. David Beaton pronounced the benediction, after which Vice-President E. T. Stevens of the Chicago Association of Commerce welcomed the visitors. Senator O. F. Berry of Carthage, Ill., responded in characteristic vein, and Mr. Robinson then delivered the presidential address, which summed up the events and situations of the last year in succinct style. This address is reproduced in full on another page. He then appointed the convention committee as follows:

*Resolutions*—J. B. Earle, Waco, Tex.; C. Y. McVey, Columbus, Ohio; W. H. Bryant, Mobile, Ala.; Terry W. Allen, Jackson, Tenn.; E. D. Schade, Johnstown, Pa.; A. F. Adams, Kansas City, Mo.; F. B. MacKinnon, Washington, D. C.; George R. Fuller, Rochester, N. Y.; H. Linton Reber, St. Louis, Mo., and President G. W. Robinson, St. Paul, Minn.

*Nominations*—Hart F. Farwell, Terre Haute, Ind.; H. L. Gary, Kansas City, Mo.; H. L. Beyer, Grinnell, Iowa; S. M. Heller, Louisville, Ky., and F. A. Knapp, Bellevue, Ohio.

*Credentials*—L. E. Hurts, Lincoln, Nebr.; E. D. Glandon, Pittsfield, Ill., and C. C. Deering, Des Moines, Iowa.

Secretary-Treasurer W. S. Vivian made an unusually interesting report, the first since his return from the battlefields, and it also is published elsewhere in this issue. Captain Vivian's recommendations as to prospective work for the association were made the subject of a movement for immediate action by G. W. Schweer, Missouri, and finally placed in the hands of a committee, appointed later.

Chairman Earle of the resolutions committee entered with the following report, which was unanimously adopted:

*Whereas*, on August 1, 1918, the President of the United States, by authority of an Act of Congress, took supervision, possession, control and operation of all telephone, telegraph, cable and radio systems throughout the United States.

*And whereas*, the Independent telephone organizations have, without exception, faithfully and loyally supported the government in all its war undertakings.

*And whereas*, the public views with concern the changed conditions with regard to the railroad properties, which are such that if turned back to their owners, they are insolvent

*The Assembled Delegates at One of the Early Sessions of the Convention. Old Timers Will See Many Familiar Faces in this Picture.*

unless the public is called upon to pay tremendous increases in rates and fares, or unless the government makes up by taxation the deficit which appears to be approximately a billion dollars per annum.

*And whereas,* in outlining a policy, the Wire Administration has repeatedly announced that expenses must not be increased except where a corresponding increase in rates and charges to the public can be obtained, and such a policy up to date has been in the interest of the public and has resulted in a fair, just and economical administration to the public, wage earner and owner, as is evidenced by the fact that the wire systems are in process of being returned to the owners on reasonably short notice without beneficial legislation other than that necessary in the actual transfer.

*And whereas,* according to press articles, organized labor has appointed a committee composed of members of their organization to wait upon the administration for the purpose of inaugurating a change in policy with a view of, in the closing days of federal control, to so change policies that the owners will not be able to operate and maintain their service to the public without exacting therefor a much greater charge than the traffic will bear.

*And whereas,* the properties were taken by the government when the relations between the companies, their employes and the public were most friendly.

*And whereas,* it has been the policy of Independent telephony and particularly of this association to so extend its service that its benefits could be enjoyed by all, even the most remote rural districts.

*And whereas,* organized labor has not taken into consideration the welfare of the public either from the standpoint of present operations or future development, and if its views were to prevail, the charges to the public would become so high that the service would soon be out of reach of the average user and would become a luxury instead of a general utility as at present.

*And Whereas,* the views of organized labor are championed only by a few men who are in touch with conditions in large industrial centers and who ignore the balance of the United States.

*And whereas,* the United States Independent Telephone Association, representing over 10,000 Independent telephone companies scattered throughout the United States with representatives present from every section, in convenion assembled, hereby resolve:

*First:* That we commend the President and the Postmaster General for their wise policy in administering the wire systems of the United States, and especially in their endeavor to avoid large increases in rates and charges to the public and at the same time being fair, just and considerate to the wage earners and the owners of the property.

*Second:* We petition the administration to continue such a policy throughout the remaining period of federal control that huge burdens shall not be placed upon the properties, thereby preventing their return to their owners solvent, well-organized, and capable of continuing to render efficient service and without overburdening the public with large increase in rates as to destroy the traffic. And that the administration do not yield to the efforts of organized labor in its attempts, in the closing days of federal control, to so change these policies that the owners will not be able to operate and maintain their service to the public without exacting therefor a much greater charge than the traffic will bear.

*Third:* That the directors of this association are hereby directed to present a copy of these resolutions to the Honorable Woodrow Wilson, President of the United States and the Honorable A. S. Burleson, Postmaster General.

L. E. Hurtz of Nebraska then talked informally to the delegates on the activities of the association in Washington, where he had been assisting Mr. MacKinnon. He urged the telephone men to get their rate adjustments through the state regulatory bodies as soon as possible.

### WEDNESDAY SESSION

The first business of the opening session of June 25 was the election of a board of directors, and the report of the nominating committee was adopted unanimously, the secretary casting the ballots. The new directors, elected for three years, are:

W. H. Bryant, Mobile, Ala.; W. G. Brorein, Tampa, Fla.; Chas. C. Deering, Des Moines, Iowa; H. D. Critchfield, Chicago; J. B. Edwards, Chicago; Hart F. Farwell, Terre Haute, Ind.; H. L. Gary, Kansas City, Mo.; S. M. Heller, Louisville, Ky.; W. Roy McCanne, Rochester, N. Y.; C. E. Tarte, Grand

Captain Terry W. Allen of the Signal Corps and of Jackson, Tenn., who will be remembered as the author of numerous "red-blooded" articles in TELEPHONE ENGINEER, told the convention of some of his experiences in France. His talk was both humorous and informative, and greatly enjoyed. Director B. J. Mullaney, of the Illinois Committee on Public Utility Information, gave a talk that was closely followed, the excellent publicity work already accomplished by the committee being well known. He was followed by President Samuel Insull of the Commonwealth Edison Company, Peoples Gas Light and Coke Company, and other large Illinois utilities, one of the largest public service operators in the country. His subject, an all-important one at this time, was "The Present Position of the Public Utilities."

### THE WEDNESDAY LUNCHEON

Instead of a banquet, the visiting delegates were entertained at a luncheon at the hotel Wednesday noon. Harry F. Atwood, former assistant corporation counsel of the city of Chicago and author of "Back to the Republic," addressed the luncheon on "Our Constitution, an Antidote to Bolshevism." Vice-President F. B. MacKinnon then delivered a remarkable address, which is reproduced in full on another page and should be read carefully by every telephone man.

### THE THURSDAY SESSION

Newly-elected President MacKinnon presided over the Thursday morning session, which was the concluding meeting of the convention. He called successively upon Vice-President Earle, Director Brorein, Director Deering, Francis Dagger of Canada and Secretary-Treasurer Vivian, all of whom responded in fitting words. A paper, entitled "Choosing Employes by Test," was then presented by O. A. Knell, plant superintendent for the Tri-State Company at St. Paul, Minn., which proved, in view of the current labor situation, an interesting communication. Mr. Knell was followed by Dr. Frank A. Wolff, chief of the Telephone Section, United States Bureau of Standards, Washington, D. C., whose paper entitled "Why Standardize?" appears elsewhere in this issue and should be carefully read by all. The commission was then entertained by a talk by Miss Millicent Martin, member of the second group of Signal Corps operators to go to France. After she had related some of the interesting incidents of her year and a half at the front, the subject of standardization was taken up again, Arthur Bessey Smith of the Automatic Electric Company, Hiram D. Currier of the Kellogg Switchboard and Supply Company and Ray H. Manson of the Stromberg-Carlson Telephone Manufacturing Company participating and contributing many valuable suggestions.

The subject of revision of the by-laws, to reduce the executive committee to seven members, and to provide for reëlecting retiring directors for a term of three years or until appointment of their successors, was then taken up and the amendment passed. The resolutions committee reported again, and after the customary appreciations read the following resolutions, which were passed:

*Whereas,* the Postmaster General caused to be put into effect service connection, move and change charges in the administra-

tion of the telephone business under government control, and

*Whereas,* the control and administration of all telephone properties will probably cease and determine within a short time, and

*Whereas,* in the opinion of the Independent telephone companies of the United States, the principle upon which said charges were based is sound and in the interest of the telephone companies and also as a matter of justice and fairness to the telephone users themeselves.

*Therefore Be It Resolved,* that the United States Independent Telephone Association, in annual convention duly assembled, does hereby recommend to the public utilities commissions and other regulatory bodies throughout the United States, that they establish and maintain suitable service connection, move and change charges for the various telephone companies within their several jurisdictions as part of their established policy.

*Resolved Further,* that we recommend to the telephone operating companies that they maintain in effect the above referred to charges until the same shall be superseded by law or order of some competent authority, and that they use their influence in securing the establishment of such charges set forth in this resolution from their state commissions or other regulatory bodies.

*Be It Resolved,* by the United States Independent Telephone Association, representing more than 10,000 Independent telephone systems with representatives present from all sections of the United States, in convention assembled, at Chicago, June 26, 1919, that it hereby expresses to A. S. Burleson, postmaster general of the United States, and his assistants, its appreciation for his fair, just and impartial administration of the wire systems of the country.

*Be It Further Resolved,* that the president and secretary of this association be instructed to transmit by wire a copy of these resolutions to A. S. Burleson, postmaster general of the United States, and that they be instructed to mail a copy of these resolutions to Woodrow Wilson, President of the United States.

*Be It Resolved,* by the United States Independent Telephone Association representing more than 10,000 Independent telephone systems with representatives present from all sections of the United States in convention assembled at Chicago this 26th day of June 1919, that it expresses its appreciation for the temporary protection for the wire industry proposed by the report of the conference committee, from the Interstate and Foreign Commerce committees of the Senate and House of Representatives.

*Be It Further Resolved,* that the members of Congress be and are hereby urged to immediately adopt said conference report.

After an address by Vice-President Frank L. Beam of Ohio, in which he expressed his appreciation of the convention's accomplishments, referring specifically to many of its features and to the work of the association officers during the past year, President MacKinnon declared the convention adjourned.

The exhibits of manufacturers on the seventeenth floor of the hotel, remarkable for a number of innovations, are briefly described in the department "Of Interest to the Trade" in this issue of TELEPHONE ENGINEER.

# Registered at the Convention

A

Achatz, R. V., Purdue University, Lafayette, Ind.
Acord, W. W., Ohio State Telephone Co., Columbus, Ohio.
Adams, A. F., Gary Properties, Kansas City, Mo.
Ainsworth, T. C., Kinloch-Bloomington Telephone Co., Bloomington, Ill.
Aisthorpe, E. T., Home Telephone Co. of Cairo, Cairo, Ill.
Aisthorpe, H. R., Home Telephone Co. of Cairo, Cairo, Ill.
Aldrich, A. G., Grand Ledge Telephone Co., Grand Ledge, Mich.
Aldredge, E. J. B., Murphysboro Telephone Co., DuQuoin, Ill.
Alexander, M., Platte Valley Telephone Co., Scottsbluff, Nebr.
Allen, Terry W., Allen Properties, Jackson, Tenn.
Appleman, J. S., Oskaloosa Home Telephone Co., Oskaloosa, Iowa.
Appleton, Chas. R., Mt. Vernon Telephone Co., Mt. Vernon, Ohio.
Arnold, E. O., Mt. Vernon Telephone Co., Mt. Vernon, Ohio.
Ashe, F. M., Kewanee Home Telephone Co., Kewanee, Ill.
Atkinson, Geo. E., Creston Mut. Telephone Co., Creston, Iowa.
Avery, Oscar, Avery & Loeb Electric Co., Columbus, Ohio.

B

Babington, R. B., Piedmont Tel. & Tel. Co., Gastonia, N. C.
Baer, Cameron L., Cumberland Valley Telephone Co., Harrisburg, Pa.
Bailey, W. M., Richmond Home Telephone Co., Richmond, Ind.
Baker, B. F., LeRoy Telephone Co., LeRoy, Ill.
Baker, Lt. Col. Edw. O., 2216 Cleveland Ave., Chicago, Ill.
Baker, J. H., Baker Telephone System, McLean, Ill.
Banes, C. W., Scott Company Telephone Co., Winchester, Ill.
Barber, E. L., Springfield-Xenia Telephone Co., Springfield, Ohio.
Barnes, A. J., Maritime Tel. & Tel. Co., Halifax, N. S., Canada.
Barry, R. L., Tri-State Tel. & Tel. Co., St. Paul, Minn.
Bassett, Wm. H., Kinloch Telephone Co., St. Louis, Mo.
Beam, Frank L., Ohio Indiana Telephone Ass'n., Mt. Vernon, Ohio.
Beaton, M. J., Ohio State Telephone Co., Columbus, Ohio.
Beck, C. M., Farmers Home Telephone Co., Gibbon, Nebr.
Becker, Calvin, Austin-Inland Telephone Co., Belton, Mo.
Bell, R., Winona Telephone Co., Walkerton, Ind.
Bellamy, E. D., Marion County Electric Co., Knoxville, Iowa.
Bemis, E. W., Chicago, Ill.
Bennett, Chas. A., Kansas City Home Telephone Co., Kansas City, Mo.
Bercher, Alex., Atwood Mut. Telephone Co., Atwood, Ill.
Bernetha, Belle, Rochester Telephone Co., Rochester Telephone Co., Rochester, Ind.
Berry, A. J., Marion County Telephone Co., Marion, Ohio.
Berry, L. M., Craven & Berry, Dayton, Ohio.
Berry, O. F., Mississippi Valley Telephone Co., Carthage, Ill.
Beverly, G. I., Inter-State Ind. Tel. & Tel. Co., Aurora, Ill.
Beyer, H. L., Interior Telephone Co., Grinnell, Iowa.
Blomeyer, E. C., Texas Telephone Co., Waco, Texas.
Boardman, F. M., Story County Ind. Telephone Co., Nevada, Iowa.
Bohn, Frank E., Home Tel. & Tel. Co., Fort Wayne, Ind.
Bone, Harold W., Interior Telephone Co., Montezuma, Iowa.
Boorde, E. J., Hoopeston Telephone Co., Hoopeston, Ill.
Bott, W. L., Jasper County Telephone Co., Rensselaer, Ind.
Bowden, A. V., Maroa Telephone Co., Maroa, Ill.
Bowling, C. M., National Telephone & Electric Co., Clinton, Ill.
Bowser, C. E., St. Joseph Telephone Co., North Liberty, Ind.
Boyd, C. D., Southern Electric Supply Co., Atlanta, Ga.
Bover, J. W., West Plains Telephone Co., West Plains, Mo.
Boyle, J. W., Piper City Telephone Co., Piper City, Ill.
Boynton, C. D., Boynton Telephone Co., Pleasant Plains, Ill.
Bradley, H. E., Eastern Traffic Ass'n., Philadelphia, Pa.
Branson, E. C., Wellington Telephone Co., Wellington, Ohio.
Bromley, Thos. Jr., United Home Telephone Co., Muskegon, Mich.
Brorein, W. G., Peninsular Telephone Co., Tampa, Fla.
Brown, C. L., Consolidated Telephone Co., Abilene, Kans.
Brumleve, A. J., Coles County Tel. & Tel. Co., Mattoon, Ill.
Bruner, Frank, Coon Bros. Telephone Co., Rantoul, Ill.
Bruner, J. F., Rantoul, Ill.
Bryant, W. H., Home Telephone Co., Mobile, Ala.
Bucher, H. S., Astoria Telephone Exchange, Astoria, Ill.
Budlong, O. A., Commercial Telephone Co., Toledo, Iowa.
Buntin, Virgil, Lebanon Telephone Co., Lebanon, Ind.
Burns, W. R., St. Clair County Telephone Co., Pell City, Ala.
Butterworth, Virgil, Crawford County Telephone Co., Denison, Iowa.

C

Camp, Geo., Rushville Co-operative Telephone Co., Rushville, Ind.
Campbell, J. H., Butler-Rich Hill Telephone Exchange, Butler, Mo.
Cannon, Geo. X., Stephenson County Telephone Co., Freeport, Ill.
Carr, V., Des Plains Telephone Company, Park Ridge, Ill.
Carroll, J. E., Mauston Electric Service Co., Mauston, Wis.
Caster, Mark T., Lincoln Tel. & Tel. Co., Lincoln, Nebr.
Chambers, B. Y., Consolidated Tel. & Tel. Co., Moultrie, Ga.
Chapman, F. S., Decatur Co., Indep. Telo. Co., Greensburg, Ind.
Chandler, Lula, Robertson County Telephone Co., Mt. Olivet, Ky.
Chase, A. B., Van Buren County Telephone Co., South Haven, Mich.
Cheadle, C. B., Sterrett & Cheadle Properties, Joliet, Ill.
Christy, H. A., Lima Tel. & Tel. Co., Lima, Ohio.
Clark, A. B., United Home Telephone Co., Muskegon, Mich.
Clouser, M. L., Thorntown Telephone Co., Thorntown, Ind.
Clovel, R. L., Plymouth Mutual Telephone Co., Plymouth, Ill.
Coggin, Rodney M., Northern Neck Tel. & Tel. Co., Warsaw, Va.
Coles, L. E., Crawford Telephone Co., Girard, Kans.
Collins, H. V., Citizens Telephone Co., Grand Rapids, Mich.
Cook, Jno. M., Georgia Independent Telephone Ass'n., Atlanta, Ga.
Corman, Minor, Independent L. D. Tel. & Tel. Co., Louisville, Ky.
Covell, W. H., Bellevue Home Telephone Co., Bellevue, Ohio.
Cox, Jas. N., Gainesboro Telephone Co., Cookeville, Tenn.
Cragg, A. C., Tri-State Tel. & Tel. Co., St. Paul, Minn.

Crawford, H. I., Wausau Telephone Co., Wausau, Wis.
Crichton, A. M., Tri-State Tel. & Tel. Co., Uniontown, Pa.
Crowley, J. C., Jr., Peoples Telephone Co., Superior, Wis.
Culbertson, A. A., Mutual Telephone Co., Erie, Pa.
Cuppy, F. O., Lafayette Telephone Co., Lafayette, Ind.
Curren, A. J., Elyria Telephone Co., Elyria, Ohio.
Curtis, A. L., Castlewood Telephone Co., Castlewood, S. D.

D

Dagger, Francis, Ontario Ry. & Municipal Building, Toronto, Ont., Canada.
Daggett, O. E., Christian County Telephone Co., Taylorville, Ill.
Daniel, W. S., Winona Telephone Co., Knox, Ind.
Darling, H., United Telephone Co., Monroe, Wis.
Davenport, T. A., Belmond (Iowa) Telephone Co.
Davis, A. E., Delphos Home Telephone Co., Delphos, Ohio.
Davis, Geo. H., Rushville Co-operative Telephone Co., Rushville, Ind.
Davis, H. E., Kansas City Home Telephone Co., Kansas City, Mo.
Davis, H. J., Sand Springs Telephone Co., Sand Springs, Okla.
DeBoer, H., Edgerton Telephone Co., Edgerton, Minn.
Deering, Chas. C., Iowa Independent Telephone Ass'n., Des Moines, Iowa.
Denkoff, J. H., Interstate Telephone Co., Dyersville, Iowa.
De Turk, H. I., Waverly Telephone Co., Waverly, Ill.
Dewenter, John, Lafayette Telephone Co., Lafayette, Ind.
Dexter, R. P., Galva Telephone Co., Galva, Ill.
Diggs, A. B., Winona Telephone Co., Winamac, Ind.
Donnelly, H. G., Union Telephone Co., Bonaparte, Iowa.
Donnelly, Kenneth, Union Telephone Co., Bonaparte, Iowa.
Dorland, R. O., LaPorte Telephone Co., LaPorte, Ind.
Doyle, H. W., Clinton, Ill.
Drilling, J. H., Lyman Telephone Co., Roberts, Ill.
Duncan, J. C., Peoples Tel. & Tel. Co., Knoxville, Tenn.
Dutter, H. O., Bucyrus Telephone Co., Bucyrus, Ohio.

E

Earle, I. B., Texas L. D. Telephone Co., Waco, Tex.
Edwards, Stanley R., Telephony, Chicago.
Ellis, W. R., Peoples Telephone Co., Geneva, Ohio.
Eresnian, C. R., Lafayette Telephone Co., Lafayette, Ind.
Erwin, John D., Riverside Telephone Co., McConnellsville, Ohio.
Esler, A. F., Wheeler-Green Electric Co., Rochester, N. Y.
Every, G. M., Grand Ledge Telephone Co., Grand Ledge, Mich.

F

Falls, J. D., Lima Tel. & Tel. Co., Lima, Ohio.
Fargo, H. D., Telephony, Chicago.
Farmer, Ethel, Galva Telephone Co., Galva, Ill.
Farrington, Chas. Jr., Appanoose County Telephone Co., Centerville, Iowa.
Farrington, J., Peoples Telephone Co., Rio, Wis.
Farwell, E. D., Delaware County Telephone Co., Manchester, Iowa.
Farwell, Hart. F., Citizens Ind. Telephone Co., Terre Haute, Ind.
Farwell, H. P., Farmers Telephone Co., Irene, S. D.
Farwell, M. B., Wabash Valley Telephone Co., Paris, Ill.
Fehrenbach, E. G., Martin Telephone Co., Llano, Tex.
Ferguson, P. M., Mankato Citizens Telephone Co., Mankato, Minn.
Finley, I. E., Junction City Telephone Co., Junction City, Kans.
Fish, E. C., Local Telephone Co., Clifton, Ill.
Fisher, F. B., Grand Rapids, Mich.
Fisher, W. S., Local Telephone Co., Clifton, Ill.
Fitzgerald, Mrs. Tresa, El Paso Telephone Co., El Paso, Ill.
Folsom, H. P., Citizens Telephone Co., Circleville, Ohio.
Ford, W. L., Murphysboro Telephone Co., Carbondale, Ill.
Fretz, M., Harlan & Avoca Telephone Co., Harlan, Iowa.
Fuller, Geo. R., Rochester Telephone Co., Rochester, N. Y.

G

Gaines, E. L., Home Tel. & Tel. Co., Fort Wayne, Ind.
Gallon, Walter J., Antigo Telephone Corp., Antigo, Wis.
Garner, F. E., LeRoy Telephone Co., LeRoy, Minn.
Garrity, L. F., Chatsworth Telephone Exchange, Chatsworth, Ill.
Gary, H. L., Gary Properties, Kansas City, Mo.
Geogue, E. A., Edgerton Telephone Co., Edgerton, Ohio.
Glandon, Ed D., Pike County Telephone Co., Pittsfield, Ill.
Goff, C. D., Wellington Telephone Co., Wellington, Ohio.
Goodrich, W. F., La Crosse Telephone Co., La Crosse, Wis.
Gordon, A., Mangum Telephone Co., Mangum, Okla.
Gordon, E. G., Louisville, Ky.
Gordon, R. E., El Paso Telephone Co., El Paso, Ill.
Gordon, Stanley, El Paso, Telephone Co., El Paso, Ill.
Greber, F. W., West Texas Telephone Co., Brownwood, Tex.
Gregson, W. B., Tuscarawas County Telephone Co., New Philadelphia, Ohio.
Griffith, Thos. J., Fort Dodge Telephone Co., Fort Dodge, Iowa.
Gruver, F. A., Monon Telephone Co., Monon, Ind.
Gullett, C. E., Central Ill. Tel. & Tel. Co., Lincoln, Ill.
Gustafson, Hazen, Fredonia, Kans.
Gustafson, J. A., Fredonia Telephone Co., Fredonia, Kans.

H

Hall, Chas., Coos & Curry Telephone Co., Marshfield, Ore.
Hall, Roy W., Westfield-Kansas Telephone Co., Westfield, Ill.
Halliday, W. W., Illinois Telephone Co., Jacksonville, Ill.
Halvorson, M., St. Croix Telephone Co., New Richmond, Wis.
Hamlin, G. W., Rock River Telephone Co., Rochelle, Ill.
Hamlin, Herbert B., Galva Telephone Co., Galva, Ill.
Hancock, Jas. E., Carroll Indiana Telephone Co., Carroll, Nebr.
Hanway, T. E., Monticello, Telephone Co., Monticello, Ind.
Harris, H. L., Kansas City Home Telephone Co., Kansas City, Mo.
Harrison, J. A., Lima Tel. & Tel. Co., Lima, Ohio.
Hawley, Fred M., Bluefield Telephone Co., Bluefield, W. Va.
Hawley, W. P., Bluefield Telephone Co., Bluefield, W. Va.
Hayes, A. W., Mutual Telephone Co., Erie, Pa.
Haywood, Geo. P., Lafayette Telephone Co., Lafayette, Ind.
Heavens, Fred J., Pittsburgh & Allegheny Telephone Co., Pittsburgh.
Heinemann, Adolph, Amana, Iowa.
Heinemann, N., Wausau Telephone Co., Wausau, Wis.
Heller, S. M., Central Home Tel. & Tel. Co., Louisville, Ky.
Henderson, L. C., Johnson County Home Telephone Co., Warrensburg, Mo.
Heseltine, W. M., Citizens Telephone Co., Delaware, Ohio.
Heydacker, R. L., Rock River Telephone Co., Rochelle, Ill.
Higgins, P. Kerr, Port Arthur Telephone Co., Port Arthur, Tex.
Hodgson, F. M., Winona Telephone Co., Plymouth, Ind.
Hofferber, J. L., Automatic Home Telephone Co., Pontiac, Ill.
Holdoegel, Perry C., Central Mutual Telephone Co., Rockwell City, Iowa.
Hoover, E. E., Star City Telephone Co., Star City, Ind.
Hoover, Roscoe A., Star City Telephone Co., Star City, Ind.
Hosea, M. F., Indianapolis Telephone Co., Indianapolis, Ind.
Houghtaling, Jay, St. Paul, Minn.
Howe, Fred, Rock County Telephone Co., Janesville, Wis.
Hubenthal, H. W., Corporation Commission of Oklahoma, Oklahoma City.
Hunt, W. O., Lenawee County Telephone Co., Adrian, Mich.
Hunter, A. D., Marseilles Telephone Co., Marseilles, Ill.
Hunter, W. R., Quitman Telephone Co., Quitman, Ga.
Hurtz, L. E., Lincoln Tel. & Tel. Co., Lincoln, Nebr.
Hyneman, L. F., Lexington (Ill.) Home Telephone Co.

I

Isom, S. M., Mitchell Telephone Co., Mitchell, Ind.

J

Jeffery, H. E., Interstate Indep. Tel. & Tel. Co., Springfield, Ill.
Jenings, W. A., Hawkinsville Telephone Co., Hawkinsville, Ga.
Johnson, J., Remsen Telephone Co., Remsen, Iowa.
Johnson, W. W., Public Service Commission, Jefferson City, Mo.
Johnson, W. S., Kearney Telephone Co., Kearney Telephone Co., Kearney, Nebr.
Jones, C. L., Athens County Home Telephone Co., Athens, Ohio.
Jordon, A. B., Peninsular Telephone Co., Tampa, Fla.

K

Kast, E. C., Minnesota Independent Telephone Ass'n., Minneapolis, Minn.
Kaui, Mrs. J. H., Robertson County Telephone Co., Mt. Olivet, Ky.
Kepler, Harry E., Kansas Telephone Co., Lawrence, Kans.
Kirst, Chas. F., Two Rivers Telephone Co., Two Rivers, Wis.
Knapp, Frank A., Local Telephone Co., Bellevue, Ohio.
Knell, O. A., Tri-State Tel. & Tel. Co., St. Paul, Minn.
Knipe, H. H., Commercial Tel. & Tel. Co., Olney, Ill.
Knipe, Wm., Commercial Tel. & Tel. Co., Mt. Carmel, Ill.
Koontz, C. E., Bremen Home Telephone Co., Bremen, Ind.
Kraege, L. M., Kansas Telephone Ass'n., Topeka, Kans.

L

Larsen, C. J., Kansas City Home Telephone Co., Kansas City, Mo.
Lidecker, F. A., Walkerton Telephone Co., Walkerton, Ind.
Livermore, H. A., North Dakota Telephone Ass'n., Fargo, N. D.
Lockhart, J. H., Tri-State Tel. & Tel. Co., St. Paul, Minn.
Lockhart, J. M., Tri-State Tel. & Tel. Co., St. Paul, Minn.
Locks, Millard C., Citizens Telephone Co., Grand Rapids, Mich.
Lockwood, J. B., United Home Telephone Co., Muskegon, Mich.
Long, Claude D., Missouri Telephone Ass'n., Jefferson City, Mo.
Loudenslager, O. L., Plymouth County Telephone Co., Le Mars, Iowa.
Lumpkin, W. C., Coles County Tel. & Tel. Co., Mattoon, Ill.
Lyman, Wilbur F., Jasper County Telephone Co., Rensselaer, Ind.

M

McBane, Jas., Bergholz Telephone Co., Bergholz, Ohio.
McCarthy, J. H., Western Pennsylvania Independent Telephone Ass'n., Erie, Pa.
McGregor, John, Memphis Telephone Co., Memphis, Tenn.
McHenry, Houck, Capital Telephone Co., Jefferson City, Mo.
McInnes, A. J., Cent. North Dakota Co-operative Telephone Co., Dazey, N. D.
MacKinnon, F. B., U. S. Independent Telephone Ass'n., Washington, D. C.
McLaughlin, W. F., Peoples Telephone Co., Chillicothe, Ill.
McLean, Walter R., Peoples Mutual Telephone Co., Hillsboro, Ill.
McNally, Frank, Albany Telephone Co., Albany, Ill.
McVey, C. Y., Ohio State Telephone Co., Columbus, Ohio.
Maloney, P. J., Whitley County Telephone Co., Columbia City, Ind.
Mann, N. E., Macon Telephone Co., Macomb, Ill.
Mapes, Roy F., Michigan-Indiana Telephone & Traffic Ass'n., Grand Rapids, Mich.
Martin, J. C., Interior Telephone Co., Grinnell, Iowa.
Mason, P. N., Empire Telephone Co., Buda, Ill.
Mathews, C. B., Statesboro Telephone Co., Statesboro, Ga.
Mathews, J. L., Statesboro Telephone Co., Statesboro, Ga.
Mattison, R. M., Automatic Home Telephone Co., Pontiac, Ill.
Melick, H. B., West Liberty Telephone Co., West Liberty, Iowa.
Metheany, G. H., Lima Tel. & Tel. Co., Lima, Ohio.

Millard, Harry B., Marshall Telephone Co., Marshalltown, Ind.
Miller, A. L., Syracuse Home Telephone Co., Syracuse, Ind.
Miller, B. G., Crete Telephone Co., Crete, Nebr.
Miller, Chas., Crete Telephone Co., Crete, Nebr.
Miller, E. G., Warren & Niles Telephone Co., Warren, Ohio.
Miller, J. W., Moody County Telephone Co., Flandreau, S. D.
Miller, John Z., Mutual Telephone Co., Erie, Pa.
Mills, W. R., Carroll County Telephone Co., Savanna, Ill.
Mitchell, Jay G., Public Utilities Commission of Illinois, Springfield, Ill.
Monheimer, E. C., H. C. Teafel Electric Co., Louisville, Ky.
Moody, F. B., Elyria Telephone Co., Elyria, Ohio.
Mooney, Jas. E., Indianapolis, Telephone Co., Indianapolis, Ind.
Moore, Frank D., Southern Telephone & Construction Co., Tallahassee, Fla.
Morgan, F. W., Argos Telephone Co., Argos, Ind.
Morrison, J. W., Rochester Telephone Co., Rochester, N. Y.
Munn, Hayes, Tyner-Donaldson Telephone Co., Tyner, Ind.
Mussman, Geo. W., Inter-State Independent Tel. & Tel. Co., Crete, Ill.

N

Neesen, E. W., Wellsburg Telephone Exchange, Wellsburg, Iowa.
Neill, D. M., Red Wing Telephone Co., Red Wing, Minn.
Newbill, H. J., Allen Telephone Properties, Corinth, Miss.
Newman, Frank V., Indianapolis, Telephone Co., Indianapolis, Ind.
Newton, L. L., Colusa Telephone Exchange, Colusa, Ill.
Nicolay, A. D. Benton Telephone Co., Benton, Wis.
Norris, F. A., Monmouth Telephone Co., Monmouth, Ill.
Nott, F. A., Byron Telephone Co., Byron, Ill.

O

O'Donnell, T., Des Plaines Telephone Co., Des Plaines, Ill.
Orthwein, W. R., Kinloch Telephone Co., St. Louis, Mo.
Ovitt, C. L., Northern Telephone Co., Enosburg Falls, Vt.

P

Pankey, W. A., Bluefield Telephone Co., Bluefield, W. Va.
Park, J. D., Kenton Telephone Co., Kenton, Ohio.
Parker, Pascal, Liberty Telephone Co., Liberty, Mo.
Parker, R. L., Mutual Telephone Co. of Traer, Traer, Iowa.
Parrett, F. R., Princeton Telephone Co., Princeton, Ind.
Parsons, B. A., Ashland Home Telephone Co., Ashland, Wis.
Patterson, A. R., Streator Telephone Co., Streator, Ill.
Peters, W. C., Home Telephone Co., Elkhart, Ind.
Phillips, C. M., North Judson Telephone Co., North Judson, Ind.
Pitcher, Louis, Dixon Home Telephone Co., Dixon, Ill.
Polk, W. C., K. C. Home Telephone Co., Kansas City, Mo.
Pontius, Roscoe D., Rochester Telephone Co., Rochester, Ind.
Pontius, Tully, Rochester Telephone Co., Rochester, Ind.
Poole, J. C., Central Illinois Tel. & Tel. Co., Lincoln, Ill.

Q

Quatman, Geo. B., Sidney Telephone Co., Sidney, Ohio.

R

Reed, M. A., Boyer Valley Telephone Co., Woodbine, Iowa.
Rice, Chas. M., Logansport Home Telephone Co., Logansport, Ind.
Rice, J. H., Knox City Telephone Exchange, Knox City, Mo.
Richardson, M. P., Rock County Telephone Co., Janesville, Wis.
Riordan, J. A., Morrison Telephone Co., Morrison, Ill.
Risser, J. F., Des Plaines Telephone Co., Des Plaines, Ill.
Risser, T. S., Lincoln Tel. & Tel. Co., Lincoln, Nebr.
Roberts, L. H., DeKalb County Telephone Co., Maysville, Mo.
Robeson, M. L., Galena Home Telephone Co., Galena, Kans.
Rolfe, Chas. A., Southwestern Home Telephone Co., Redlands, Calif.
Rothermel, Rex, Union Telephone Co., Plainfield, Wis.
Routh, Wm. P., Kenton Telephone Co., Kenton, Ohio.
Runkel, F. H., Portage Telephone Co., Portage, Wis.
Rust, John Y., San Angelo Telephone Co., San Angelo, Tex.

S

Sapp, Elmer, Bureau County Independent Telephone Co., Princeton, Ill.
Saunders, G. L., Interior Telephone Co., Grinnell, Iowa.
Savage, W. J., Southern Telephone Co., Inc., Alexandria, La.
Schade, E. D., Johnstown Telephone Co., Johnstown, Pa.
Scherer, L. W., Yale Telephone Co., Yale, Okla.
Schirmeyer, F. M., Citizens Telephone Co., Decatur, Ind.
Schwamb, F. W., Telephone Engineer, Chicago.
Schweer, G. W., Missouri Union Telegraph Co., Clinton, Mo.
Scott, D. M., Brussels, Ont., Canada.
Scott, F. S., Brussels, Ont., Canada.
Sery, Ralph J., United Telephone Co., Monroe, Wis.
Shepard, Oscar E., Washburn Telephone Co., Washburn, Ill.
Shock, C. A., Grayson Telephone Co., Sherman, Tex.
Shoemaker, A. C., Kewanee Home Telephone Co., Kewanee, Ill.
Shoots, W. L., Home Telephone Co., Goshen, Ind.
Simonton, H. E., Lima Tel. & Tel. Co., Lima, Ohio.
Skinner, D. P., Valley Home Telephone Co., Saginaw, Mich.
Sloan, C. A., Pratt Telephone Exchange, Pratt, Kans.
Slusher, E. S., Macomb Telephone Co., Macomb, Ill.
Smith, H. B., Ashland Telephone Co., Ashland, Ky.
Smith, J. A., Fort Worth, Tex.
Smith, J. P., Golden Valley Telephone Co., Beach, N. D.
Smith, R. K., Warren & Niles Telephone Co., Warren, Ohio.
Smith, S. R., Sedalia Home Telephone Co., Sedalia, Mo.
Smith, T. J., Citizens Independent Telephone Co., New Lexington, Ohio.
Smith, W. L., Badger State Tel. & Tel. Co., Neillsville, Wis.
Snyder, G. C., Valley Telephone Co., Lebanon, Ohio.
Sowersley, Chas. N., Citizens Telephone Co., New Troy, Mich.
Spengler, John H., Marion & Northern Telephone Co., Marion, Wis.
Spivey, M. V., Rushville Co-operative Telephone Co., Rushville, Ind.
Staderman, A. L., Citizens Independent Telephone Co., Terre Haute, Ind.
Stahl, T. P., Siloam Springs Telephone Co., Siloam Springs, Ala.
Stants, W. B., Northern Indiana & Southern Michigan Telephone Co., LeGrange, Ind.
Staub, Frank X., Home Tel. & Tel. Co., Fort Wayne, Ind.
Stecher, Herman E., Fort Supply Tel. & Tel. Co., Supply, Okla.
Steninger, J. A., Steninger Telephone Co., Parker, S. D.
Stephenson, E. N., Woodhull Union Switchboard Association, Woodhull, Ill.
Sterrett, E. S., Henry Telephone Co., Henry, Ill.
Stevens, Rollo R., Tri-State Tel. & Tel. Co., St. Paul, Minn.
Stewart, A. B., Peninsular Telephone Co., Tampa, Fla.
Stewart, R. L., Consolidated Tel. & Tel. Co., Thomasville, Ga.
Stoops, Claude R., Nappanee Telephone Co., Nappanee, Ind.
Stuart, A. C., Lima Tel. & Tel. Co., Lima, Ohio.
Sudmall, C. E., Gulf Telephone Co., Milton, Fla.
Sullivan, J. C., Creston Mutual Telephone Co., Creston, Iowa.
Sumpter, Hubert, Colchester Farmers Telephone Co., Colchester, Ill.

T

Taylor, Arthur, Rhinelander Telephone Co., Rhinelander, Wis.
Taylor, M. S., Fayette Home Telephone Co., Lexington, Ky.
Thompson, W. Gilbert, Valley Telephone Co., Lebanon, Ohio.
Thorne, J. C., Jefferson County Telephone Co., Fairfield, Iowa.
Todd, H. C., Hanamo Telephone Co., Maryville, Mo.
Tomlinson, Sam., Winona Telephone Co., Plymouth, Ind.
Trautwein, F., Morrison telephone Co., Morrison, Ill.
Trinter, P. C., Black River Telephone Co., Lorain, Ohio.

U

Uhl, W. J., Logansport Home Telephone Co., Logansport, Ind.

V

Van Horn, W. H., Home Telephone Co., Wabash, Ind.
Van Voorhis, F. J., Licking Telephone Co., Mt. Vernon, Ohio.
Veatch, E. M., Paducah Home Tel. & Tel. Co., Paducah, Ky.
Veatch, J. J., Paris Home Tel. & Tel. Co., Paris, Ky.
Vivian, W. S., U. S. Independent Telephone Ass'n., Chicago, Ill.

W

Walker, O. L., Ashley Tel. & Tel. Co., Ashley, Ill.
Ward, Geo. T., Local Telephone Co., New Washington, Ohio.
Warner, Claude A., Monon Telephone Co., Monon, Ind.
Warner, Chas. H., Rossville Telephone Co., Rossville, Ill.
Warner, P. M., Rossville Telephone Co., Rossville, Ill.
Watkins, Guy, Newark Telephone Co., Newark, Ohio.
Watson, D. G., Van Buren County Telephone Co., South Haven, Mich.
Watts, Geo., Knightstown Telephone Co., Knightstown, Ind.
Weakley, E., Clinton County Telephone Co., Plattsburg, Mo.
Weber, Ed., Two Rivers Telephone Co., Two Rivers, Wis.
Weber, F. A., Citizens Telephone Co., Pekin, Ill.
Weirich, P. J., United Telephone Co., Monroe, Wis.
Weston, C. T., Port Byron Telephone Co., Port Byron, N. Y.
Weston, C. W., Port Byron Telephone Co., Port Byron, N. Y.
Wheeler, F. L., Peoples Telephone Co., Scotland, S. D.
Wheelwright, E. N., Roanoke Telephone Co., Roanoke, Ill.
Wiggs, Rex, Watseka Telephone Co., Watseka, Ill.
Wilde, W. J., Alberta Government Telephones, Edmonton, Alta., Canada.
Wilder, H. E., Home Telephone Co., Angola, Ind.
Wilder, Leon, Angola, Ind.
Williamson, G. V., Roanoke & Edgerton Telephone Co., Edgerton, Ohio.
Willitz, H. C., Rock County Telephone Co., Janesville, Wis.
Wilson, John, Boynton Telephone Co., Pleasant Plains, Ill.
Wilson, W. S., Henry County Home Telephone Co., Eminence, Ky.
Wimp, J. D., Shelby County Telephone Co., Shelbyville, Ky.
Wittemire, L. R., Mansfield Telephone Co., Mansfield, Ohio.
Wolff, Dr. Frank A., Bureau of Standards, Washington, D. C.
Wolfrom, Ralph T., Local Telephone Co., Bellevue, Ohio.
Woodruff, Paul H., **Telephone Engineer**, Chicago.
Workman, A. B., Marseilles Telephone Co., Marseilles, Ill.
Wright, C. A., Ohio State University, Columbus, Ohio.
Wright, John H., Jamestown Telephone Corporation, Jamestown, N. Y.

Y

Yeager, T. C., Northeast Missouri Telephone Co., Canton, Mo.
Yerrick, A. O., Walkerton Telephone Co., Walkerton, Ind.
Youmans, T. L., Osawatomie Telephone Co., Osawatomie, Kans.
Young, C. I., Citizens Telephone Co., Delaware, Ohio.
Young, E. H., Port Byron Telephone Co., Port Byron, Ill.

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Zerwas, Phil., Manning Telephone Co., Manning, Iowa.
Aberdeen, S. D.
Zietlow, J. L., Dakota Central Telephone Co.,

# Retiring President Robinson's Address

PROBABLY never in the history ot telephony has there been a like period, so fraught with rapid and radical changes as the year since we were last assembled in convention. When we adjourned in June of 1918 it was with quite general feeling that important evenets in the field of telephony were imminent; but with possibly little realization of the character and extent of the changes that would be effected within a few weeks thereafter.

We were then in the midst of a great war; we were filled with a patriotic desire to assist the government in recruiting a signal corps that would be a credit to the grandest army that ever crossed the ocean; and in this we were successful, for no branch of that splendid army has received, or is entitled to, greater praise than the signal corps boys who went from the ranks of the telephone industry.

But, important as were these activities of the early part of 1918, they were soon to be overshadowed by the revolutionary epoch that had its inception in the so-called Aswell resolution. On July 2nd your president received a telegram from Vice-President MacKinnon to the effect that this resolution was before Congress; having been favorably reported out by the committee.

Had that resolution passed as originally drafted the situation in the telephone industry during the recent months would have been far more serious and critical. Prompt action alone averted what might have been an unintentional injustice to the industry, for this original resolution made no provision for compensation to the owners, and no time was specified for the return of the properties. Your officers were very fortunate in securing the counsel and co-operation of Hon. Frederick C. Stevens.

Largely through his efforts and those of Vice-President MacKinnon, Congress was impressed with the necessity of so amending the Aswell resolution as to give a large measure of protection to the industry. In this crisis the board of directors of the association and the individual members responded promptly, and by their liberal contribution of time and effort made possible the success that was achieved. Again was the great value of organization and co-operation practically demonstrated, and again did the member company receive many fold the cost of its membership.

The events that so rapidly followed the passage of the Aswell resolution are fresh in the minds of all: The proclamation of the President of July 22, with the delegation of authority to the Postmaster General; and the transfer of the telephone industry from private to government operation and control at midnight of July 31.

The eleven months following have surely been the New Era in the industry. Many and complex have been the problems presented; interesting and beneficial have been the efforts to find a solution—and out of it all has come very much of benefit to the industry.

Possibly it is as yet too recent for our perspective to be really good; but as time rolls on, we will more and more realize that it has created a real community of interest, and brought us closer together as an organization and as individuals; that it has afforded the best possible demonstration of the practical value of the United States Independent Telephone Association to its member companies, and to the entire telephone industry; that our government officials and the public, as a whole, have gained a better understanding of our industry and its problems; that the future is brighter because of the past; and that, as the last semblance of sectionalism was eliminated through the close association of the Northerner and the Southerner during this last great war, so do we believe has been eliminated that factionalism that for so many years existed in the telephone industry, to the obvious disadvantage of all and the ultimate jeopardy of the invested capital.

Must we not feel, therefore, that we have gained much from the experience of the past year, and can we not reasonably look to the future in a spirit of the greatest optimism? Our properties are very soon to be turned back to us without complications; in good physical condition, and with our organizations practically intact.

Largely through the efforts of the government officials the general public has been brought to a realization of the increased costs of operation and of the necessity for adequate revenues. The extent and importance of the telephone industry is advertised as never before, and telephone securities should be much in demand as a safe and desirable investment.

With the return of the properties, our connection and association with the Wire Control Board will cease, and it is fitting that we should take this opportunity of expressing our appreciation of the courtesies and the consideration received at their hands. In assuming the control and direction of the wire industry of this country, the board was in a position to materially help or to virtually disrupt the telephone industry.

Without hesitation it chose the former course; it realized that the best interests of the companies demanded that existing organizations be not disturbed; it recognized the crying need of increased revenues to meet greatly increased costs, and gave its approval to rates and practices that were fair and equitable to the companies and to the public; it clled into its councils both Bell and Independent operators, and in all things exhibited a spirit of fairness and impartiality. Its task was no easy one, and it should receive a vote of appreciation from this convention.

From an operating board composed of such men as Union N. Bethell, A. F. Bethell, A. F. Adams, F. A. Stevenson and G. M. Yorke we could expect nothing but the best, and we were not disappointed.

Many of the practices inaugurated by the Wire Control Board and by the Operating Board have met a long-felt need, and should be continued indefinitely. A service connection charge is reasonable and just, placing the burden as it does upon those who receive the service. The basis of the toll rates as laid down in Order No. 2459 is unquestionably correct, and should be generally adopted. These practices are equitable to both the companies and the public, and we shall hope for their continuance.

The year has brought the return of our secretary from France, where he was able to render a valuable service to his country. With his return the organization was again complete and able to resume its normal fuctions. Through his renewed efforts the membership has recently been largely increased, and suspended activities resumed. You will know how much he was missed and how welcome was his return.

I would call your attention to the need of adequately financing the association for the present year. The activities of the past eleven months have necessitated large expenditures. We are now entering the reconstruction period where our interests demand the very closest attention, and that means money outlay. The report of the treasurer will amplify this need, and I shall hope for a prompt and generous response.

To each and every telephone company the value of the work accomplished by the association during the past year will exceed the aggregate of its contributions over the life of its membership. If you appreciate this—if you hope for continued benefits—be liberal in your support.

Possibly there is a broader field for the activities of this or a similar organization. If Independent telephony is to continue and become stabilized, it must be better advertised, better financed, and adopt more uniform standards of plant construction and of operation. I leave with you the thought that possibly this could be best accomplished through some centralized organization that could give its various units a maximum of service at a minimum of cost.

I believe that this is, indeed, a new era in telephony; that many of the practices and standards of the past must be abandoned; that dual service, except in isolated instances, will soon be eliminated; and that the ultimate will be a national system, with divided ownership, but so connected up as to make possible a connection from any telephone user to any other telephone user.

This the public is demanding, from a viewpoint of service, and it unquestionably spells efficiency in service and economy in operation. Whatever may be our individual opinions and desires, we must recognize the demands of that public that after all is the dictator of our policies.

This convention should give serious consideration to the legislation now before Congress and be prepared to make recommendations that will reflect the best thought of the entire membership. Let us present the ideas of a united rather than a divided industry. Economic problems that will confront us with the return of the properties should be thoroughly discussed, and the best possible solution worked out. You have many serious questions to solve at this convention, and your time should be wholly given to their discussion. For that reason I am not going to longer encroach upon your time.

For the past two years I have been honored with the presidency of this association. I have thoroughly appreciated the honor and have attempted to do what I could for the good of the industry. That I could not devote to the interests of the associaion all of the time and effort it deserved, was my misfor-

tune; but conditions with my own properties have been such as to demand really all of my time.

In retiring from the presidency of your association I wish to express my most hearty appreciation of the thorough co-operation and support extended by your board of directors and by the individual members. They have at all times readily responded to call, and often at a material sacrifice to their personal and property interests. Upon the other officers of your association has, of necessity, fallen the major burden of activity and responsibility and they have met these in a way that has practically demonstrated that the United States Independent Telephone Association has a vice-president and a secretary that in ability and in energy rank with any official of any like organization in this country.

# Secretary-Treasurer Vivian's Report

THERE are more members in our association today than ever before. At the last convention there were enrolled 717 active members and 22 associate members, a total of 739. During the balance of 1918 there were 99 new members received and 11 dropped from the membership roll. Since January 1 this year we have received 150 new members and dropped 25, making a total of 952, a net gain since the last convention, held 12 months ago, of 213.

While this record shows progress, it is not entirely satisfactory, as there are still a goodly number of Class C and Class D companies which, in justice to themselves, to the industry, and to the association, should be members. Classifying our membership, we find enrolled 24 Class A telephone companies, operating 672,528 telephones; 90 Class B telephone companies, operating 453,156 telephones; 393 Class C telephone companies, operating 518,497 telephones, and 403 Class D telephone companies, operating approximately 161,886 telephones, a total of 910 telephone companies operating 1,806,067 telephones in 42 states.

The state having the largest number of members is Missouri, with 131 telephone companies operating approximately 186,602 telephones. The state whose member companies operate the most telephones is Ohio with 70 members, operating approximately 305,402 telephones.

During the year 1918 the receipts and disbursements of the association were as follows:

| | |
|---|---|
| Cash on hand January 1, 1918 | $ 2.243 |
| Received during year 1918 | 32,846 |
| | $35,089 |
| Disbursements during 1918 | 31,937 |
| Cash on hand December 31, 1918 | 3,162 |
| | $35,089 |

These items do not include contingent on working funds amounting to $2,600 in the hands of your officers.

This money was received from two principal sources: Membership dues and voluntary contributions and pledges from members, telephone companies, manufacturers and supply dealers. Our membership dues bring about one-tenth of the revenue required to operate the association, and last year there were 182 contributing companies which pledged a total of $25,898. There is a total of 284 contributing companies, who pay anywhere from $1 per month to as high as $250 per month to the support of the association over and above their membership dues. This number is 102 more than has ever before been enrolled.

Credit for securing such favorable results is due in a large measure to the counsel and co-operation of our finance committee, consisting of: H. L. Beyer, chairman, Grinnell, Iowa; Geo. R. Fuller, Rochester, N. Y.; Frank L. Beam, Mt. Vernon, Ohio; S. M. Heller, Louisville, Ky., and W. J. Uhl, Logansport, Ind.

The first of the year the finance committee prepared an estimate of the amount of money that would have to be raised during the year in order that the association might not only carry on its routine work, but that it might continue to perform the special and unusual work that had been thrust upon it during the past year, and which would have to be continued during the current year.

This total of approximately $4,000 per month was then apportioned to a large number of our members and letters soliciting pledges were prepared and mailed. The generous response which we have had from our membership has indicated in no uncertain manner the interest our companies have, and the confidence they place in the association to properly represent them in the many problems which have arisen.

As splendid as this response has been, it still becomes necessary for the association to raise several thousand dollars if it is to complete the work of the year without a deficit. Our members seem to have realized as never before the almost incalculable value of a large, strong, efficient national organization.

I have often had these questions asked: "What does the association do for the small companies? What benefits do they get from membership therein?"

The advantages of membership in the association are many; they are direct and indirect, tangible and intangible.

They come from having a capable, efficient officer like Vice-President MacKinnon on the job at Washington, constantly watching developments in Congress and throughout the several governmental departments, such as the Department of Justice, the Interstate Commerce Commission, and the department of the Postmaster General.

The association is prepared to competently represent every member company before the Interstate Commerce Commission, as required by the Interstate Commerce Act and is at this time actually representing several hundred of our members. This service is rendered without any additional charge—simply one of the benefits. If a company employed an attorney in Washington to represent it, it would cost several times as much as our membership fee and then it would, in all probality, receive a less efficient service. Every member is privileged to bring to the association any problem it may have with a view of receiving advice and information from the association that will help it in its solution. Indeed, during the history of the association, a great deal of benefit has come to our member companies in this way.

The various bulletins, operating rules, etc., which have been published and distributed by the association have been of great value. But notwithstanding this, there are smaller companies which feel that so far as all matters of legislation, regulation and litigation are concerned, it is up to the larger companies to look after those things in order to protect themselves and that the benefits which accrue to the smaller company, if any, are only indirect.

The benefits which come to compaines and persons and the industry as a whole, because of meetings like this where we exchange ideas, where there are always ideas advanced that are worth while, where we have opportunity to see the latest developments in the manufacturing field, and where we can meet our friends and associates and discuss the problems which we have in common, and which is a meeting reproduced by the several state associations each year—all are a result of organized association.

Notwithstanding the work accomplished in the past and especially during the past year, I believe we can well afford to seriously consider the question: Is the program of our association such as will appeal most strongly to Class C and D companies as well as Class A and B companies.

My personal opinion is that the association can offer a program which will appeal more strongly to our member companies by enlarging our program so as to include the study, preparation and distribution of bulletins bearing on the actual departmental work of our member companies.

The United States Independent Telephone Association should properly be to the Independent telephone systems what the American Telephone & Telegraph Company, is to the Bell systems, except that the operation and procedure would be exactly the reverse—our membership would control the association.

To accomplish this, the work of the association should be enlarged by the employment of men who are practical specialists along lines of management, and accounting and these should be furnished with adequate facilities in their studies for the preparation of bulletins.

As rapidly as a bulletin is prepared, it would be submitted to the proper committee of the association and if approved by it, would be referred to the board of directors. If no difficulties were encountered, it would be published and distributed to our members.

There are practical questions of management which arise every day and these questions should properly be answered by a man of broad experience as a manager of properties in communities of all sizes.

The association frequently receives communications from member companies asking to be referred to some firm from which they can secure the money they need to develop their properties. At the present time about all we can say to the companies that desire less than $100,000 is that they must procure their money locally and within the borders of their own states.

If the association employed one skilled in the matter of finance, the association would secure an entry into financial circles and would establish such a reputation that if the engineers of the association approved a loan to one of our member companies, that loan would be granted. Thus our member companies would be saved from embarrassment and often-times from the necessity of selling out to a competitor.

In the legal department there is likewise a great field for a man of the right experience. Legal questions are often submitted to the association and if there were a competent attorney in the association's office who could give thorough consideration and study to each problem, not only the individual company but the industry as a whole would be the gainer. This is also true in matters of operation affecting plant and traffic departments.

During the past year questionaires BC-1 were requested by the departments of the Postmaster General, and those companies which several years ago had adopted and put into practice the uniform system of accounts prescribed by the Interstate Commerce Commission, were able to furnish the required information without difficulty. All the difficulty experienced was by companies that were not using the standard system of accounting as prescribed by the Interstate Commerce Commission.

There is need for an expert accountant to go out under the auspices of the association to promulgate uniform accounting among the smaller companies. There is likewise need for bringing about more uniformity between the system of accounts prescribed by the Interstate Commerce Commission and the several state commissions. This plan would involve men going into the field and making an actual study of conditions, finding out the weaknesses, the defects, the leaks and the inefficient methods used and then providing a remedy.

The association will not attain to its highest possible efficiency and usefulness until it exercises a supervision so thorough that it will know just what the actual conditions are with each company and will bring about whatever changes are necessary to make the individual property one which will pay a reasonable return upon the investment.

We all realize today that there are companies that think they are making money—are perhaps paying dividends—but if their exact situation were pointed out to them, would find they are losing money.

All such conditions should be changed, because of the ultimate loss to the stockholders directly involved and to the connecting companies and to the industry, as a whole, because of the inadequate service most usually furnished by such companies.

Not one company in reality can be independent in the final analysis. What affects one, affects all.

This kind of work is intensely practical and would bring big returns on the amount of money expended. It would bind the Independent telephone companies of this country together as nothing else could possibly do. With representatives of the association passing to and fro throughout the field, misunderstandings, which now sometimes arise because of lack of information, would gradually disappear.

The question would not be raised in the minds of the smaller companies as to what benefits the smaller company gets from the association, because there would be opportunity to discuss the work the association is doing, and there would be direct practical results that we do not see today.

It is true that this would cost some additional money, but why should an organization representing several hundred millions of dollars of invested capital continue to work under a handicap? Why shouldn't the needs of the field be carefully weighed and considered?

And when those needs are determined, a suitable and adequate budget should be prepared and prorated to the membership of the association on the basis of the number of units operated by each member company, a unit being a telephone or a circuit mile of long distance line, with some special arrangement for the manufacturers. This would be a small amount to each company. It could, and properly should be, handled as a regular part of their pay roll or operating expenses.

If this association should decide to prepare a program along this line, we would find that it would not require any thing like the 4½ per cent which the parent Bell company receives from its subsidiary companies. As a result of such a program, our industry would be a better industry; our properties would be more successful; our stockholders would be better safeguarded and made more secure; our employes would be more efficient; our subscribers and patrons would receive a better service—all of which, it seems to me, is in the direct line of our duty as representatives of a great industry whose business it is to render a public service.

# Address by F. B. MacKinnon

DOWN in Washington they are today crossing the t's and dotting the i's on the final document that winds up one of the wild experiences which we have had during this period of democracy. And I sincerely hope that with the 31st of July, at midnight, we will end this democratic performance and go back to a republic.

I listened, as did all of you to this morning, to the very interesting address of Captain Terry W. Allen. Two of his sentences have remained with me. He said: "Every experience from the time I left New York until the armistice was signed, was a sensation."

I want to say to you, Captain Allen, that every experience we have had since the first of last July has been a sensation.

He said that over in France there were conditions that they had to meet and not theories. I will say to you that we had theories and not conditions to meet in this country.

As I said, they are writing the last chapter. I received a telegram last night that the conference committee of three senators and three members of the House of Reprensentatives had agreed upon the terms of the bill returning the telephone and telegraph companies and properties to their owners. That is what you are interested in, and the condition in which it leaves you, and the condition under which you are to operate until the period of control is ended. I take it that that is the one uppermost point in your mind.

Under this bill which has been agreed upon, the properties are to be returned to their owners on the midnight of the last day of the month in which the President signs the bill. The President, as some of you men may have heard, is not in this country; so that he will not have the opportunity to sign the bill until some time in July. Therefore your properties will come back to you at midnight on the 31st day of July.

This bill provides, by act of Congress under its war power, that all of the rates which have been put into effect—established and approved is the language—by the Postmaster General prior to the 6th of June shall remain in effect for a period not to exceed four months from the time the properties are returned, which means that they are to continue in effect until the 30th of November.

Now just what does this mean? It means this: That unless the rates established and approved by the Postmaster General prior to the 6th of June are changed or adjusted by some regulatory body having legal jurisdiction over them, they can remain in effect, unless you voluntarily reduce them or change them.

This means that on the 1st of August and from that time on, any commission or regulatory body having jurisdiction can suspend or modify those rates. Congress, however, has expressed its opinion and its desire that these rates shall continue in effect for at least four months if not modified, so that the companies may not automatically pass back to the rates under which they were operating a year ago; so that they may be sustained during this period of adjustment.

Now I have been asked repeatedly, and I expect it is in the minds of a great many of you, what becomes of the rate that is approved or will be approved since the 5th of June? That rate, if the Postmaster General shall see fit to approve any rates, will be a legal rate until midnight on the 31st of July; and the legal rate from that time on, in the minds of many attorneys, until it is upset, or adjusted, or suspended by somebody having legal authority to do so. Other attorneys go even further than that and claim that those rates shall remain in effect until they are proved unreasonable or discriminatory.

The Postmaster General is taking this position: He takes it as a notice to him from Congress that on and after the 5th

of June he is not to make any more rates. A good many companies have been sending in applications for increases of rates since the 5th of June.

Many of you who have done so, will receive the answer back from the Postmaster General that "Congress has notified me in their enactment of the law returning the property, that they do not desire me to continue in making rates."

The Postmaster General, however, realizes the condition in which the companies are, and realizes that there must be some remedy. Under the Supreme Court decision handed down on the 2nd of June, the Postmaster General is the only authority in this country that has the right to make rates, to fix rates. His is the final approval.

Many of the state commissioners are taking the stand that in view of that fact they cannot act even if they should desire to do so.

The Postmaster General has in mind—and I think he will carry out his purpose—issuing an order relinquishing to the state commissions, to the regulatory bodies, the right to adjust rates and instructing the companies to resume their relationships in such a way that the commissions will have a legal authority to act, and the companies will be following the proper procedure in going before those commissions and submitting their applications for increases and adjustments.

It is the desire of the Postmaster General, as he expressed himself to me on last Saturday, to so adjust this matter that the companies will experience the least amount of difficulty in arranging the transition from government control back to private control.

On the 5th of June, the Postmaster General issued two orders, order No. 3175, announcing the award of compensation to the owners of the properties, and order No. 3178, which lays out the procedure under which the companies are to act during the rest of this period of government control.

No. 3175, as you will remember, says that any company that desires to accept its earnings during this period of government control as its compensation from the government, can do so, and the compensation matter, so far as that company is concerned, is closed, but that any company not willing to take its earnings as compensation shall make claim and file claim with the Postmaster General by the 20th of June. I have been asked if I considered if a company has not filed by the 20th of June, that the company is barred out. I do not think so. I think the Postmaster General will grant ample opportunity and I think the law protects the company to the extent that it is entitled to just compensation and an opportunity to be heard.

Under orders Nos. 3175 and 2980, which was the similar order granting the privilege of accepting their earnings as compensation to D class companies, some 300 companies have filed claims for compensation.

The procedure, so I am told, as to these companies is as follows: Within as brief a time as is possible after the end of the period of government control, a financial statement will will be called for from these companies, submitting their earnings and expenses and all of their financial operations during the year of government control.

After the examination has been made of these statements by J. W. Van Sant, whom we all know—he was formerly a telephone accountant for the Interstate Commerce Commission and is now the chief accountant for the Postmaster General in adjusting these matters—after he has gone over these statements and audited them and consideration has been given them by other officers and the Postmaster General, arrangement will be made for holding hearings at convenient points throughout the country, where companies in the immediate territory can go and support their written statements with whatever oral contentions they may desire to make.

In this way it is hoped that every man will have opportunity to be heard, and that adjustment can be made satisfactorily with every man. That is the procedure.

If you have filed a claim for compensation under order No. 3175 do not get anxious if you hear nothing from the department, because the procedure is as I have outlined it. They will notify you and probably send you the proper forms on which to make a report to them for the period of government control. It stands reasonable that they must wait until the end of control until they can do this.

Some have been asking me since I have been here, why you have not heard from this compensation matter. The reason is that they are attempting to adopt this sort of procedure, which will enable them to handle the matter systematically.

Order No. 3178 says that all telephone companies shall return to the conditions of operation set forth in order No. 1783. Order No. 1783 is known also as Bulletin No. 2. It is the first order issued by the Postmaster General, issued on the 1st of last August, and tells the companies to continue to do business as usual, going through the regular channels. Therefore, any company which has not filed a claim for compensation is back where it was on the first of last August when it received order No. 1783. It is not required to collect the service connection charges, nor the standard toll rates, nor the other changes put in effect by the Postmaster General since the first of last August.

I have been asked in that connection, what position would be assumed by the department where a company not making a claim of compensation and, therefore, operating entirely under order No. 1783, connects with and exchanges toll business with a company having filed a claim for compensation, and, therefore, still subject to the orders of the Postmaster General.

My answer has been, and my opinion is that the restriction on the company which is still subject to the order, must govern in all such cases, and that those toll rates which the company that is making a claim for compensation and still under the Postmaster General's complete Jurisdiction is required to enforce, must be collected and charged by both companies, on such interchanged business. It is the only practical way that the matter can be handled.

The company which has made a claim for compensation is required to collect service collection charges, the standrad toll rate under order No. 2495 and such other charges as may have been established by the Postmaster General. We, therefore, have in this country today 300 of the Independent companies that are required to collect all the charges and are subject to all of the orders issued by the Postmaster General since August 8, and we have the large group of thousands of other companies that are freed from all other orders except the one I mentioned, No. 1783.

That, in brief, is the situation with which you are confronted today.

I have been asked the question as to compensation, what sort of an award is to be made. I have talked perhaps with representatives of a hundred companies who are making claim for compensation and there are a half dozen sorts of claims, any one of which may be accepted as a just claim. I do not think there is going to be any hard and fast rule adopted.

You all know probably that contracts have been made for compensation of several different bases. Several companies have claimed that they were entitled as just compensation to the average of the three pre-war years. Other companies have said that their condition was such that they could not accept that as just compensation and desired as compensation, their earnings based upon their earning capacity on the first of last August, when the Postmaster General took them over.

Other companies have said: "We can't tell what we want until the period of government control is over. What we want to have is a return of a certain percentage on our investment in fixed capital."

So you see any one of these claims might be substantiated and granted and, therefore, it is impossible for anyone, until the department has carefully canvassed the whole situation, to speculate as to what kind of an award of compensation is going to be made.

As to the company with a compensation agreement, of course, that agreement stands. If any company which has a claim for compensation, has not a copy of the compensation agreement—the form which is being used by the Postmaster General, and has been used during the past year—I shall be very glad to send that company a copy of the form.

It is my opinion that certain of the charges put into effect by the Postmaster General should be retained by our companies. There should be some co-operative effort, energetic effort within the next month, to handle this matter so that in those cases, where the companies desire to retain the service connection charge, move order, move charge, which is one of the fairest charges ever put upon a telephone subscriber, they can be retained.

This you can do if you present the matter properly to your state commissions and other bodies. That is for the future, but that should be arranged between now and the 1st of August, if you possibly can do so, and I think you can do so from the expressions I have received from practically all the state commissions that they desire to co-operate in working out these problems. I think if this matter was properly handled, there would be no difficulty in establishing the justice of the service charge and retaining it from now on.

Of course, if you have complied with your state commission's orders, and the filing has been accepted, that is sufficient. But I am talking about organized effort.

It seems to me there should be an organized effort in every state to put these charges into effect, so that there will become

a standard charge throughout the United States—a recognized charge by the subscriber that when he had the telephone installed, he pays the charge, and when he wants to have his telephone moved, he pays a charge.

The general counsel for this association is Frederick C. Stevens, a man well versed in utility law, in legislative practice and, as I think our board of directors unanimously agree, one of the soundest thinkers we have.

Mr. Stevens was to have been on the program this morning. He handed me a copy of his address as I left Washington, saying that it was impossible for him to be here on account of the finishing up of some other matters which he is looking after in Washington. I am not going to attempt to read Mr. Stevens' address, but I do want to read several paragraphs from it.

"The experience of the federal control of railroads and of the wire systems during the past two years, and the yet more varied and disastrous experiments along the same line, but on a smaller scale, of several hundred municipalities throughout the country, have convinced the great majority of our people that public ownership and operation of the various public utilities has been, and must be, a failure.

"They believe that such a policy means largely increased expenses, with much poorer and more unsatisfactory service; that it necessarily results in extreme waste inertia, vacillation, and favoritism; that it prevents the proper initiative and foresight to provide the needful extensions, betterments, and maintenance, which in the past always have and in the future should develop and encourage the marvelous industrial growth of our people.

"But as bad as such conditions would be, the patriotic and thoughtful men and women of our country further apprehend that the creation of favored classes and interests, which are inevitable by such policies would encourage additional socialization of our great industries, under various pretexts, with yet further class and sectional favoritism and burdens which would not only crush those which have contributed the most of our national development but even more would menace the existence and perpetuity of our free institutions.

"A socialized state controlled by the highly-organized minority of its benefited classes could not and would not seek to fairly and justly protect the rights of all citizens, of all sections, and of all classes, and this discrimination and this favoritism would naturally grow with the feeding and mean the beginning of the end of our free institutions.

"Every business man realizes that the ordinary citizen really thinks he can manage a public utility far better than those who then own and operate it. So that from the very nature of your industry, you are the outposts which must protect the public service of this country and the vital industries of this country from the fever of public ownership.

"The problem is presented to you as to what you can do or ought to do to meet such a possible emergency. There is nothing new about this; it has arisen many hundreds of times during the past few years; is recurring somewhere nearly every day; and will, again and again, return to plague so long as human nature continues as it is.

"It is equally true that there is nothing particularly new, and that there can be no panacea, to meet such a contingency. The unfortunate experiences of others do not seem to be impressive, as hope springs eternal when the hoper is not forced personally to pay all of the bills for any failure in his prophecies."

Another paper was submitted to me by David Friday, who is the financial advisor of the Postmaster General in connection with compensation matters. Doctor Friday was professor of political economy in the University of Michigan. He has had an opportunity to observe from the inside something of the telephone conditions, and so he has written and handed me this document, all of which I am not going to read.

It is entitled, "Price Changes and Just Telephone Rates."

"Telephone rates are the prices which the public pays for telephone service. To satisfy the demands of justice and reasonableness, these prices must cover the cost of rendering that service and leave a profit which compares favorably enough with profits in other branches of industry to attract to telephone companies and other utilities a continuing supply of capital for extensions and improvements.

"If rates are either more or less than this amount, they are not just. If they are more, they will yield a profit which serves no purpose except to enrich the security holders of the company. If they are less, they are against the public interest because they lead to a deterioration of the service and to a diversion of capital to industries which are more profitable but whose products are of less importance to the public. We have today come to the stage where this latter is the situation.

"It follows from this definition of just rates that there must be a necessary interdependence between telephone rates, the level of prices, of wages, and of the rate of profit in the general field of industry.

"Costs of operation are merely the prices which must be paid for labor and materials used in furnishing service and the taxes levied by government. These prices are no different to telephone companies than to anyone else, for while public regulation fixes the prices which they may charge for their services, it does not limit the prices which they must pay for labor, for materials, or for capital to be used for extensions or refunding operations. They must procure these things upon the general market in competition with other industries.

"The course of these prices, together with the course of taxation, must determine the course of just rates. Practically all necessity for rate revision arises out of price changes. If taxes and the prices of labor, material and capital did not change, then rates which had once been fixed at a point where they were just would remain so, except for changes in the number of subscribers served or for changes in the arts which increased or decreased the amount of labor, material or plant per subscriber."

As most of you know, it has been my privilege to serve as supervisor of the Independent telephone lines under the Operating Board. During this period we were called upon to recommend increased rates for some 200 of our companies. We have a record of having recommended increased rates amounting to two million dollars for the Independent companies during the past six months.

This might seem a large sum were it not for the fact that the Independent companies the A, B and C class companies according to the Interstate Commerce Commission reports for 1917, collected from their subscribers 52 million dollars; so that this increase in rates granted to the Independent companies during this period of control is a little less than 4 per cent.

What has been the increase in the labor, in the labor cost? Where are we today? I feel that what we need in our industry, in our branch of the industry particularly, is more definite facts as to where we are.

My experience in the last six months has been the experience of men employed by state commissions, as they will tell you in dealing with companies that are unable to furnish a proper statement of their financial condition, who have no records, who do not know the value of their property, who in many instances do not really know the amount of their expense.

The Independent companies, if they are to secure the rates that they must have to meet the increased costs of labor and materials, must be able to make such a showing to the public, not only to the commissions, but to the public, that they can convince that public as well as the commissions that those increases are absoluely necessary. We are not doing that. We have not done that.

I feel that this association has been derelict in its duty. I feel that every state association is derelict in its duty. That can, in my opinion, only be done by organized effort. To my mind, the one thing we need in our branch of the industry is such business organization as will enable every one of the company, the larger as well as the smaller to furnish these facts. It may be a surprise to you, but some of our larger companies were as unable to furnish the proper statement of their earnings and expenses as some of the smaller ones.

But it is our duty to provide such an organization that we can from an authoritative source lay before state associations, before city councils, and before the public generally, the real inside workings of the telephone business. We can do this by organized efforts, by the support of the association, by the support of the state associations, by the support of some organization which must be created.

We must have an organization to protect this industry. It is one of the most serious questions. I think it is the serious question which we have confronting us. You say that you must have rates. You cannot get rates unless you can convince the public that you need them, and you cannot convince the public that you need them, if you have not the records to show and cannot submit the evidence necessary.

We had a fine talk this morning on publicity. Of what advantage would it be to us to build up a publicity organization if we cannot furnish the publicity man with the statements necessary to prove our case? And that is our condition today. It seems to me from my experience during this last year, that the great duty before you, who represent the Independent industry, is to co-operate in the building of a real organization that can do this thing.

# Postmaster General's Orders

***With Comments by Vice-President F. B. MacKinnon, U. S. I. T. A.***

June 5, 1919.

"The President having recommended the return of the wire systems and the control of the owning companies with certain legislation designed to stabilize their operation, and the Senate Committee having taken action looking to their immediate return, and the House Committee in its hearings on the proposed legislation having indicated concurrence in the suggested immediate return with or without legislation so recommended, I feel it my duty to now return the actual control of operations to the companies. Some days ago I directed the necessary orders to be prepared to accomplish this and have today issued same. These orders do not affect questions of rates and finance with which the Congress may determine to deal. The rates now in force and the financial relation between the Government and the companies, and the Order of October 2, 1918, prohibiting discrimination because of union affiliations, will continue unless Congress in its wisdom may decide to change them or the 'emergency' is terminated by the proclamation of peace.

"By the action now taken, however, the wire companies resume actual control of operations of their respective properties and are free to formulate and put into effect their own policies, unrestricted by government control, which is to continue in any case a few weeks, and thus will be able to prepare themselves for a complete resumption of the management of their properties. It will be necessary for each company to so keep its accounts during the continuance of government control that its books may be closed on the day government control ends, in order that a full and accurate statement may be promptly made when it is called on for same."

The order of the Postmaster General reads as follows:

## Order No. 3178

June 2, 1919.

All telegraph and telephone companies, including individuals and partnerships, whose properties were taken over by the President under authority of Joint Resolution of the Congress, approved July 16, 1918, will hereafter operate and manage their properties during the remainder of the period of federal control, as under Order No. 1783, free from direct federal operation, upon the following conditions:

(1) Contracts or awards fixing just compensation for the use of any telegraph or telephone line or system shall remain in effect until the termination of said period of control.

(2) Companies with which compensation contracts have been made or to which compensation has been awarded shall continue to collect the service connection and other charges specified in Order No. 1931 as modified by Order No. 2352, the toll rates specified in Order No. 2495 as modified by Order No. 2797, and any exchange or other rates or charges which may have been specially approved by the Postmaster General, and also the rates specified in Order No. 2940; and said companies shall also continue to observe these provisions of Order No. 2067, intended to prevent discrimination against employes because they do or do not belong to any particular labor organization.

(3) Companies operating telephone systems falling within class D, I. C. C. classification, which have waived their claims for compensation under the terms of Order No. 2980, and all companies accepting the award made in pursuance of Order No. 3175, shall be released from any obligation to observe conditions No. 1, 2 and 3, as set forth in Order No. 2980; and mutual or co-operative companies shall be released from obligations set forth in Order No. 2411.

(4) Orders No. 2479 and 2534 are hereby revoked and the Operating Board created thereby is hereby relieved of its operating duties and ordered to complete or refer to the proper persons all matters now pending before it and is directed to prepare and submit a full report of all its proceedings in connection with a comprehensive statement of all expenses of said board incurred during its existence, and thereupon to dissolve not later than June 14, 1919.

## Order No. 3175

June 4, 1919.

To each telephone or telegraph company, including individuals or partnerships owning wire systems, with which the Postmaster General has not made a compensation contract or made an award as compensation because of the use, possession, control and operation of its wire system by virtue of the Joint Resolution of Congress of July 16, 1918, and the President's Proclamation of July 22, 1918, an award is hereby made of the net earnings thereof arising out of the use, possession, control and operation of same during the period of Government control, such award being made as just compensation for the supervision, possession, control and operation of its system of the United States since July 31, 1918. Any company, individual or partnership making claim for compensation different from the earnings arising out of operation of its wire system by the United States since July 31, 1918, must so notify the Postmaster General in writing on or before June 20, 1919, and at the same time shall submit to the Postmaster General a statement of its claim, together with the grounds upon which it is based.. To such company, individual or partnership just compensation will thereafter be awarded. Any company so desiring, upon application may have a hearing before the Postmaster General, or his duly authorized representative, prior to the fixing of such compensation.

## Comment

By order No. 3178 the Postmaster General releases from direct federal operation, subject to the conditions set forth in the order, all companies which have not made compensation agreements nor have a compensation awarded to them. Such companies are no longer required to collect the service connection charges or toll charges of the Postmaster General, or comply with any other orders issued by the Postmaster General. They are in effect returned to the status in which they were on July 31, 1918, prior to the Postmaster General taking control of the property.

Companies that have a compensation agreement or to whom an award has been made, or who have made claim for compensation are required to continue to collect the service connection charges, the standard toll rates and all other rates and charges that have been approved by the Postmaster General and to continue to comply with the provisions of the order requiring that there shall be no discrimination against employes on account of union and labor affiliation or non-affiliation.

Under Order No. 3175 every company which has not made a compensation agreement, or if it be a D class company, did not claim a special compensation,

is offered its earnings during the period of government control as compensation. If any A, B or C class company that has not a compensation agreement desires to make claim for a special award it must do so in writing to the Postmaster General direct, on or before June 20. Every company making such a claim or intending to make such a claim is required to continue to collect the service connection charges and toll rates the same as is required of those companies having compensation agreements. The notice to the Postmaster General should be given immediately. We would also suggest to those companies who are willing to accept their earnings as compensation that they notify the Postmaster General that they are in receipt of Order No. 3175 and accept their earnings as compensation and desire to make no special claim for compensation.

The Operating Board, the Supervisory Organization, including all the district supervisors, is dissolved, and all companies should direct their correspondence to the Postmaster General, Washington, D. C.

F. B. MACKINNON.

## Order No. 3209

June 14, 1919.

**Employes of telephone companies shall have the right to bargain as individuals or collectively through committees or their representatives chosen by them to act for them. Where prior to government control a company dealt with representatives chosen by the employes to act for them who were not in the employ of the company, they shall hereafter do so. The telephone companies shall designate one or more of its officials who shall be authorized to deal with such individuals or representatives in matters of better conditions of labor, hours of employment, compensation, or grievances, and such matters must be taken up for consideration within five days after presentation.**

**Such employes shall have the right to organize or to affiliate with organizations that seem to them best calculated to serve their interest, and no employe shall be discharged, demoted or otherwise discriminated against because of membership in any such organization, as prescribed in Bulletin No. 9, issued by me, dated October 2, 1918. In case of dismissal, demotion, or undesirable transfer of employe where no real cause is shown by company for said dismissal, demotion or undesirable transfer, it shall be considered that discrimination was practiced and upon such finding the employe shall be reinstated to former position with full pay for time lost or shall be reimbursed for any loss sustained by reason of demotion or transfer.**

**Inability or refusal to perform the regular work of position occupied by them, excessive use of intoxicants, dishonesty, incivility to subscribers or the public shall be considered sufficient cause for dismissal.**

**Where requests or demands are now pending, the telephone companies shall immediately proceed to negotiate a settlement.**

**All telephone companies are hereby directed to comply strictly with the requirements of this order, and failure to do so on the part of an official will result in disciplinary action.**

## Order No. 3210

June 16, 1919.

**Representations have been made to the Wire Board that employes having grievances are often left in doubt to whom they should be presented.. Each telephone company, therefore, shall at once designate an officer or officers of such company to whom complaints may be presented and shall make such selection known by placing a notice on its bulletin board giving the name or names of the officer or officers so selected. Such officer or officers so appointed by the company shall carefully make a notation of all complaints presented and the hour and date when same is received, and also the action taken on each complaint. This is necessary in order to avoid any controversy as to questions of fact.**

**Order No. 3209 will be strictly enforced.**

## Comment

Careful consideration should be given to these orders and no action taken without a thorough understanding of the order.

Through error, newspaper dispatches carried the announcement of Order No. 3209 in such form that it would have to be construed to mean that the Postmaster General ordered all companies that had not hitherto entered into arrangements with organization of their employes to provide the machinery for bargaining with those employes either as individuals or collectively, or by outside representatives. Such is not the correct language of the order. As will be seen, the order applies to those companies that prior to government control dealt with representatives of their employes who were not in the employ of the company, such as representatives of the union. Companies are required to again deal with such representatives. This should not be interpreted to mean that those companies that prior to government control did not have such dealing with their employes through outside represenatives of the union are required now to do so.

## Order No. 3237

**June 21, 1919. Inasmuch as certain telephone companies were unable to put into effect the toll rates prescribed in Orders Nos. 2495 and 2797 at the time intended because they were restrained therefrom by orders of various courts, it is hereby ordered that such companies place such toll rates into effect as of midnight of the day on which such restraining orders or injunctions are dissolved, and such telephone companies are ordered to bill their patrons in accordance herewith.**

## Congress Authorizes Return

Agreement was reached June 24 by senate and house conferees on legislation to repeal government control of telegraph, telephone, and other wire systems. The conferees adopted the house plan of terminating government control at midnight on the last day of the calendar month in which the law is approved.

Toll and local exchange telephone rates would be continued four months unless sooner changed by state commissions, under the conference agreement—a compromise between the ninety days' rate extension clause of the senate bill and the six months' continuance proposed by the house.

The practitcal effect of the legislation, the conferees stated, will be that all of the wires will be returned to private control and operation at midnight July 31, as it is expected confidently that the law will be signed by the president early in July.

*OPINION BY FREDERICK C. STEVENS*

*Counsel, United States Independent Telephone Association.*

It is generally admitted that the present condition of the telephone industry of the United States is so unfortunate that it may lead to disaster. It is here sought to briefly outline the situation.

I. REMEDY SUGGESTED

That the rates and tolls made effective or approved by federal authority and held to be valid by the Supreme Court,

shall continue in effect after the passage of the pending act for not more than one year or for such time after the passage of the act, until the various national, state or municipal regulatory authorities shall, within their jurisdictions, prescribe reasonable rates to replace them.

II. EXISTING CONDITIONS

(1) During or because of the war, wages of telephone employes increased more than 50 per cent from 1915 to 1919; and there was a similar increase in costs of material for maintenance and extensions.

(2) The cost of capital for the business increased from an average of 6 per cent per annum before the war to an average of 8 per cent per annum in 1919. So that in 1915 improvements costing $1,000,000 would pay an interest charge of $60,000 per annum.

While in 1919 the same work would cost $1,500,000 and require an interest charge of $120,000 per annum.

(3) Before the war, extension of telephone service averaged about 7 per cent annually.

During the war such increases practically sotpped because of the military need of such labor and material. Since the beginning of 1919, increases have averaged at the rate of more than 13 per cent per annum, with an increased cost therefor of more than 50 per cent

III. INCREASED RATES

Before federal control, the telephone companies were seeking and obtaining from the states increased rates to meet their increased expenses. Federal control stopped such proceedings, but instead prescribed its own rates and tolls to care for its large increase of expenses, which have been held valid by the Supreme Court and are now, or soon will be, in effect. These may cease with the termination of federal control, unless otherwise provided.

IV. INCREASED EXPENSES

These increased expenses will certainly continue beyond the period of the war. Because of peculiar requirements and limitations of their state statutes, many state authorities will not soon be able to provide adequate rates and revenues to meet these pressing conditions of increased service, extensions and maintenance. So the above remedy is suggested for temporary use only during this emergency.

V. EFFECT ON STATES

Under this measure no state or municipal regulatory authority is deprived for one day of any of its regulatory functions; and no individual will be compelled to pay one cent for rates or tolls above the reasonable rates prescribed by the regulatory authorities of his own state or community.

VI. CONSTITUTIONAL AUTHORITY FOR REMEDY

"That under is war power Congress possessed the right to confer upon the President the authority it gave him, we think needs nothing here but statement."—Chief Justice White in "Dakota Central Telephone Company vs. State of South Dakota, and other telephone cases decided by the United States Supreme Court, June 2, 1919.

AFTER THE WAR

Congress has similar authority under its war power to continue such rates and tolls beyond the period of the war, to provide for conditions arising during and because of the war.

The case of the U. S. vs. Gettysburg Elec. Ry. Co., 160 *U. S.* 668, decided, that the act of Congress approved March 3, 1893, creating the Military Park at Gettysburg, and the act approved June 4, 1894, granting the power of condemnation for the purposes of such park, were valid under the war power of Congress. These acts were passed twenty-eight years after the close of the Civil War.

Justice Peckham, for a unanimous court, stated at page 681: "Upon the question whether the proposed use of this land is a public one, we think, there can be no well-founded doubt; also in our judgment, the government has the constitutional power to condemn land for the proposed use." * * * "Congress has power to declare war and to create and equip armies and navies. It has the great power of taxation to be exercised for the common defense and general welfare. Having such powers, it has such other and implied ones as are necessary and appropriate for the purpose of carrying the powers expressly given into effect. Any act of Congress which directly tends to enhance the respect and love of a citizen for the institutions of his country and to quicken and strengthen his motives to defend them, and which is germane to and intimately connected with and appropriate to the exercise of some one or all of the powers granted by Congress, must be valid. This proposed use comes within such description. The provision comes within the rule laid down by C. J. Marshall in McCulloch vs. Maryland (4) *Wheat*—316, in these words—'Let the end be legitimate and within the scope of the Constitution and all means which are appropriate, which are plainly adequate to that end, which are not prohibited, or inconsistent with the letter and spirit of the Constitution, are constituional.'"

The Second Legal Tender case of Knox vs. Lee—12 *Wall* at 540, held, that the war power of Congress warranted its legal tender statutes which were valid not only as to transactions before but after its enactment, and after the conclusion of the war.

The case of Stewart vs. Kahn, 11 *Wall*—493, held, that the "Stay Laws" were constitutional and operated in 1866, one year after the conclusion of the war. At page 506 the court stated: "The Constitution gives to Congress the power to declare war, to raise and support armies and navies. Congress is authorized to make all laws necessary and proper to carry into effect granted powers. The measures to be taken in carrying on war and to suppress insurrection are not defined. The decision rests fully in the discretion of those to whom the powers involved are confided by the Constitution. In the latter case the power is not limited to victory in the field and the dispersion of the insurgent forces. It carries with it the power to guard against the immediate renewal of the conflict and to remedy the evils which have arisen during its rise and progress. This act falls within the latter category. The power to pass it is really implied from its power to make war and suppress insurrection. It is a beneficent exercise of this authority."

There seem to be no cases to the contrary, so there should be no question as to the authority of Congress to extend the war rates and tolls for a reasonable period beyond the close of the war, in order to properly adjust and care for conditions which have arisen during and because of the war.

## Rate, Hogs and Corn

Former State Senator O. F. Berry of Illinois, general attorney for the Independent Telephone Association of the state, had a verbal "brush" with an advocate of "home rule" legislation in Springfield last month, when the latter protested that no telephone rates should have been increased by the Public Utility Commission and declared that if his telephone charge was higher he would have the instrument taken out.

"Do you know of anything else that has not been raised," asked the former state senator.

"No, I can't say that I do, with the exception of my light and gas bills," the "home rule" proponent truthfully replied.

"Now, you say you have had a telephone installed for seven years and it has never cost you any more for its hire than the day you put it in?" queried Mr. Berry.

"Yes," replied the "home ruler."

"Well, I'll make you a proposition," Mr. Berry said. "If you will bring me the same amount of corn in now and put it in my bin that you would have had to have brought in when we started this service—and it's much better now than it was then—and I will give you a receipt for three years' service and $2.75 in cash.

"Why man," continued Mr. Berry, "seven years ago when we fixed our telephone rate in my town, it would have taken a good sized hog to have paid for one year's rent; now, a few strips of bacon no broader than your handkerchief will do the same thing!

"Raise the rates! The men that we paid, and it is equally true among all others in the public utility industry, we paid $60 a month to three or four years ago, we are paying today $90 to $100 and way beyond that, and the girls we hired for $20 a month, we pay $50 and more now, and the telephone we bought then for $10 we are paying $15 for now. There isn't anything else that has not been raised. I venture the assertion that there are less increases in rates in the telephone business and in the utilities generally in Illinois than any other one thing which can be named. Their services are the cheapest essential commodity which can be bought today."

# Why Standardize?

***Address Delivered Before the National Independent Convention***

BY DR. FRANK A. WOLFF*

AT the outset of my discussion I am very strongly tempted to reword the title assigned so as to read, "Why *Not* Standardize?" On this proposition I would unhesitatingly take the affirmative stand.

In order to prevent any misunderstanding as to my interpretation of the term "standardization," it would be best to attempt first its definition.

What is standardization? In the narrow sense in which it first presented itself it related to standards of measurement. The object sought was the general recognition and adoption of exactly defined standards in terms of which measurements of all kinds might be expressed. This phase of the subject led also to the development of improved methods of measurement and improved measuring apparatus so as to enable any qualified person to obtain results accurately expressed in terms of a definite unit, wherever the measurements might be made. As you all know, in nearly all measurements involved in electrical engineering an accuracy far surpassing ordinary commercial requirements is now obtainable.

In its broader sense, standardization relates to the intelligent unification of methods and practices involved in manufacturing and construction, in business procedure and operation, in short, in all lines of endeavor which present in common the necessity for performing repetition work of any character. The principal objects sought in standardization are the following:

(*a*) Uniformity of product, performance of result.

(*b*) To secure interchangeability of parts.

(*c*) To reduce to a reasonable number the types and sizes of articles manufactured;

(*d*) To improve a product, performance or result.

(*e*) To maintain production costs in general at a minimum consistent with the prevailing cost of labor and materials.

The term is also applicable to the unification of terminology and symbols so as to promote the adoption of universally understood technical terms. The adoption of standardized phraseology in local, toll and long distance operation may be cited as an illustration which can also be translated into dollars and cents.

Let us next look at the subject from the standpoint of the manufacturer. Surely no one will contend for a moment that there is any successful manufacturing establishment in this country which does not recognize the value of standardization and apply it at least in some measure in its particular field of activity. The extent to which this is done naturally depends upon the quantity of the output and the amount of repetition work of the various classes involved. No manufacturer can hope to continue in business in the face of competition (and prospective competition must always be reckoned with) without making the utmost endeavors to increase his output for a given expenditure of labor and material, due regard being given to the necessity of maintaining or improving the quality of the output. This can be fully accomplished only by the intelligent application of the principles of standardization.

Take, for example, the telephone manufacturing industry. Go through any of the factories where apparatus, equipment and supplies are made, and you cannot help asking yourself, "What is the meaning of the manufacturer's gages, dies, templates, special tools and specially designed machinery, his engineering, design and drafting rooms, his research testing and development laboratories, his shop organization and routines, his methods of keeping records of manufacturing materials and supplies and of shop costs?" You meet face to face with standardization at every turn, whether it be in connection with the manufacture of receivers, transmitters, condensers, induction coils, bells and bell boxes, receiver cords, desk stands and wall sets, protectors and fuses, drop wire, pole terminals, cable, telephone switchboards, generators, motors, power boards, and, indeed, every plant element you might mention.

Now, what is the object? It is to enable the establishment to offer to its customers its products with a guarantee that they have been made on designs based on correctly applied scientific engineering knowledge; that they have been constructed with especially adapted materials found on test to meet all requirements demanded; that they have been constructed with respect to dependability, durability and efficiency in service; that the product is uniform in quality; that parts which wear out or are subject to breakage are readily and easily replaceable with interchangeable spare parts. These objects can be satisfactorily accomplished only by the application of the principles of standardization.

In the face of the wonderful results which have already been accomplished through these means in the field of telephony alone, I cannot adequately express my appreciation and enthusiasm. Why *not* standardize to an even greater degree?

Viewed from the still broader aspect, if standardization in one establishment is of such recognized importance and value, why should not the same principles be applied to the telephone manufacturing industry as a whole? This could easily be accomplished —if telephony possessed the characteristics of certain languages of past civilization, namely, the properties of being dead and unchangeable. Happily, however, telephony is not dead, but living and growing with the full vigor of its early youth, and it cannot, therefore, be fettered with the chains of self-satisfaction resulting from past achievements.

Since we are dealing with a rapidly developing art, intelligent standardization presupposes a thorough and complete knowledge of all that has been accomplished in practice, as well as of the results which may have been obtained in development tests and small-scale trials and experimentation. In the light of this knowledge the only bar to complete success in applying the principles of standardization arises from the possibility of further developments of the art of a character which cannot be readily foreseen. This serves to a certain extent as a restraint to hasty and ill-considered standardization, for manufacturers must obviously assure themselves that investments involved

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are economically justified. Since, in such cases, judgment must play a very important part in the formulation of conclusions, and since judgment *may* sometimes be in error, any attempt to extend standardization to cover an entire industry might be unwise in view of the results obtainable when numbers of enterprising firms are independently contending in friendly rivalry for pre-eminence. Nevertheless, since radical developments of the art are less likely to occur in some lines than in others, full and frank discussion of such matters by manufacturers would greatly benefit the whole telephone industry.

Now, let us look at the subject from the standpoint of the operating end of the telephone industry. The function of a telephone company is to render service, reasonably satisfactory, adequate and safe, to the public, for which it is supposed to receive compensation to an amount sufficient, after payment of all expenses properly assignable to the conduct of the business, to yield a fair return on its investment.

For this the company, if it is of any size, must have a general business and operating organization; it must provide a plant and facilities; it must look after construction and installation work and extensions, as well as the adequate maintenance of the plant; it must provide an operating staff for properly handling the traffic; it must handle the commercial end of the business, which includes the relations of the company to the public.

Standardization in its various aspects is again met at every turn in the form of standards of construction, specifications for the purchase of equipment, materials and supplies; operating and maintenance routines; methods of keeping records of plant, traffic and rate schedules uniform to all subscribers of a class; methods of billing and collecting; methods of keeping inventory records and accounts in general. Each company is, however, thrown on its own resources unless it is required to follow prescribed forms, as, for example, in keeping its books. This is due to a considerable extent to the range in size of the Independent companies and failure to realize the full benefits which membership in this organization might be made to yield if membership were general and association funds adequate.

With regard to plant and equipment and methods of handling traffic, there should obviously be the closest co-operation between the manufacturing and operating groups if the best results are to be obtained.

Apparently lack of funds makes impossible the carrying out of the broader standardization work in a manner consistent with its real importance. The evident prerequisite to successful standardization is a full and complete knowledge of all the factors having a real bearing on the conclusions sought. These include manufacturing and operating data in all their technical and economic aspects. To collect and analyze the experience already gained and to draw legitimate conclusions therefrom is a huge task, but it must sooner or later be undertaken.

For the same reason that the art of telephony is ever changing, so also economic factors such as cost of materials and equipment, wages and hours of employment are subject to change, as the past few years have witnessed. Conclusions reached on the basis of certain assumptions *may* require revision when the assumptions cease to hold.

The safe and sane development of the art would therefore call for periodic reviews as often as conditions required. Undue ignorance or reaction cannot in the end escape detection, even with the utility business, in which, in the past, such questions have been rarely raised. Broader public policy, which must be taken into account, decrees that the public is entitled to consideration in such matters, and without doubt that company which is progressive in adapting itself to changed requirements as fast as economic considerations justify will, in the end, be assured of the greatest degree of public support.

The attitude taken by the Bureau of Standards regarding standardization in general is always friendly, sympathetic and helpful. In the field of telephony it realizes the bigness of the task and the need of wholehearted co-operation on the part of all concerned, the telephone industry, manufacturing and operating, on the one side, and the telephone-using public, through its recognized representatives, on the other. The Bureau of Standards would not only welcome such a movement, but would undertake to do all in its power to assist in bringing it about and would be glad to place its facilities at your disposal in the investigation of the technical problems involved.

How can we help most effectively? It is obviously impossible to deal directly with every individual member of the association in shaping and mapping out a program. I hope, therefore, that the United States Independent Telephone Association will see fit to appoint a committee to represent it as a whole so that the real and effective co-operation can be begun at the earliest moment.

## Terre Haute Employes Loyal

A committee of the employes of the Central Union Telephone Company of Terre Haute, Ind., asked local papers to publish the statement that they were "one hundred per cent loyal" to the company and that the rumors that they contemplated striking were erroneous. The statement of the Central Union employes is as follows:

"We, the undersigned, wish to inform anyone and everyone that there is absolutely no truth to the statement that the 'Bell employes' will consider a strike and that the statement supposed to have been made by members of the operators' union that girls working for the Bell Telephone Company had signified their intentions of organizing a union and joining the striking forces is absolutely false.

"We hereby pledge our loyalty to the Central Union Telephone Company."

The pledge was signed by ninety operators.

## Lonely Telephone Station

An isolated telephone pay station is located at a camp on the shore of Richardson lake, one of the Rangeley group in northern Maine. This telephone is more than thirty miles from the nearest station at Rumford, on the Maine Central railroad. The line runs twelve miles from the camp to the town of Andover, where connection is made with switchboard in the office of the Andover Telephone Company, a sub-licensee of the New England Company. From that town the lines extend eighteen miles to Rumford. From this telephone many emergency calls have originated during the ten years since the station was established. It has been the means of saving the lives of many hunters and woodsmen who have been injured in the north woods.

# European Telephone Practice

***Translations from the Foreign Press and Communications from European Engineers***

BY FRED W. SCHOLZ

**TELEPHONE Equipment of the German Army**—During the war it was, of course, virtually impossible to obtain detailed information about the telephone equipment of the German army, for the Germans themselves naturally did not publish the construction of their apparatus, and the Allies, granted that they had German equipment, which no doubt they did, were also averse to giving out such secret war information. But with the surrender of the German armies supplies of all kinds of apparatus fell into the hands of the Allies, and the necessity of keeping this apparatus secret also being gone, we are able to give to our readers some detailed description of the telephone equipment of the German armies.

The equipment as used by the various armies in the field is rather bulky and heavy in appearance, although it shows some very ingenious points. Fig. 1 gives a general view of the field telephones and Fig. 2 gives a complete telephone listening post apparatus ready for service.

This telephone set terminates at the bottom in a set of flexible cords with 4 conductors, terminating at the other end in two plugs, which can be used in the jacks in the battery portable case, as shown in Fig. 2. The apparatus includes a second receiver, called helmet receiver, as it is attached by a small hook to the helmet, whose flexible cord also ends in a plug which can be attached to a jack in the bottom of the combination receiver and transmitter set. In Fig 2 the whole apparatus is shown complete ready for speaking, showing the attachment of the wires and the ground connection.

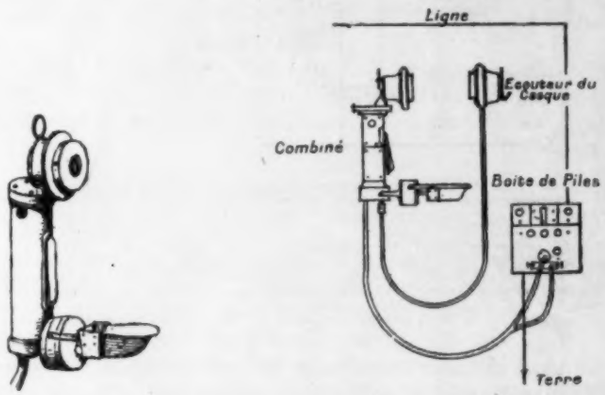
The electrical wiring and plan of the field set is fairly complex. It is shown in Fig. 3.

The calling apparatus makes use of an electromagnetic vibrating call which gives an extremely sharp and sensitive call note. The vibrating rod is operated alternately by two coils placed apart and working in conjunction with its axis of rotation. One of these coils is the self-induction coil of the telephone set and the other is a cut-off coil.

When the operator presses down on the vibrating call button, it is apparent that in the position of the vibrator rod as shown in the figure, the primary of the induction coil attracts the segment of the vibrator, while the two windings of the coil used as a cut-off coil are traversed by current running in the opposite direction. The core of this coil is of course not magnetized. As soon as the segment of the vibrator has obeyed the magnetic attraction exercised upon it on the left, it leaves its place near the upper contact, the primary of the induction coil and one of the windings of the cut-off coil are deprived of current, the second winding of the cut-off coil alone remains fed by the battery, the core of this coil is magnetized, and the segment of the vibrator is drawn to the right, swings and then returns to its contact at the upper seat. These same movements are repeated at successive intervals, the primary of the induction coil receives a series of current impulses, which the secondary transforms into call currents for use of the telephone line.

The vibration call button carries a supplementary contact, which cuts the circuit of the helmet receiver when the vibration call is given. This is done in order to prevent the ear of the operator from being injured or fatigued by the sharp and intense noise made by this method of calling. On the handle which connects the receiver with the mouthpiece there are found two buttons opposite each other. One of these is the white button, pressed down to give the vibrating or buzz call and the second button, a black one, is called a strengthener to improve receiving of messages. In its rest position, which is that in the figure, the two receivers are connected in parallel. When the operator wishes to strengthen the receiving effect, he presses upon the black button, and by this operation he connects the two receivers in series at the same time as the secondary of the induction coil is placed in shunt by one of the receivers, namely the helmet receiver.

If the operator in error should press down upon the listening button and upon the vibration call button at the same time, it does not prevent the functioning of the vibration call, for in such a case the helmet receiver would no longer short circuit the induction coil.




*Figs. 1 and 2. German Field Telephone.*
*"Combiné" = telephone set; "boite de piles" = battery case; "écouteur de casque" = helmet receiver; "ligne" = line; "terre" = ground.*

If the telephone set is used without the head receiver, there is no action if the operator should press down upon the black button which strengthens receiving. When there are some intermediate stations on the line besides the two end stations, it is forbidden to press down the amplifier button, as this might send too strong a current to the receiver.

When a field line is laid, the end of the flexible cable which is paid out by the soldier, is connected to the terminal *L* of the telephone set, the head receiver of which the soldier carries attached to the brim of his helmet. The ground terminal of the set is connected to a metallic plate fixed under the sole of the operator's boot, so that he can receive messages and test the line at any instant without a single minute's delay.

The battery case going with the set is constructed in such a way that it can be used in connection with a switchboard such as might be found at one of the stations back of the front lines or even at one of the regimental or division headquarters. To this end the battery case is provided with two jacks to allow communication by the use of a two-conductor double cord. The double cord runs from the upper jack of one of the boxes

to the lower jack of the other box. The set whose lower jack is used is short circuited.

Where sets are used in connection with great headquarters, the German armies made use of a table switchboard set with ten different connections using drop discs which would respond to even the faintest vibration call.

The buzz drop discs are constructed for receivers of great resistance, usually around 1,000 ohms. The receiv-

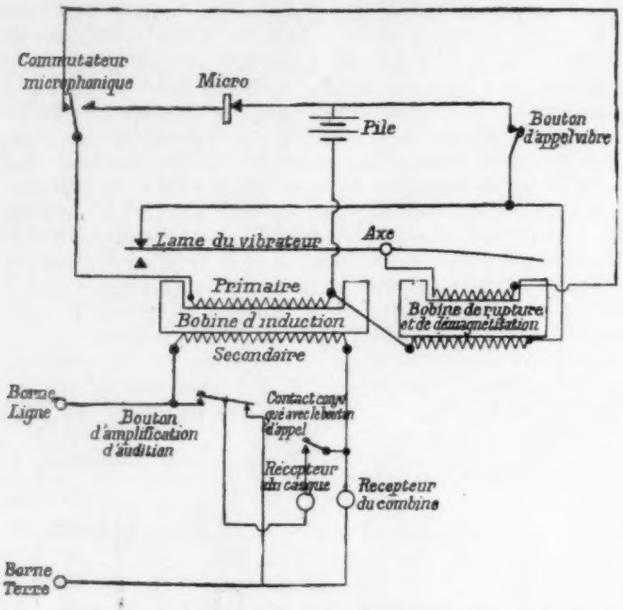



*Fig. 3. Wiring Diagram of German Field Telephone.*
*"Commutateur microphonique" = microphone switch; "pile" = battery; "bouton d'appel vibre" = vibration call button; "lame du vibrateur" = vibrator rod; "axe" = axis; "primaire" = primary; "secondaire" = secondary; "bobine d'induction" = induction coil; "bobine de rupture et de demagnetisation" = cut-off coil and demagnetization coil; "borne ligne" = line terminal; "bouton d'aplification d'audition" = button to strengthen listening effect; "contact conjugé avec le bouton d'appel" = contact joining with the call button; "recepteur du casque" = helmet receiver; "recepteur du combiné" = receiver of set; "borne terre" = ground terminal.*

ers used in these larger sets have diaphragms which are polished and carry a friction device which moves over the polished surface by means of two small copper barbs which are of unequal distance from the center. This friction device moves about an axis of rotation which is perpendicular to the diaphragm and which is immovable, passing through a hole drilled into the center of the diaphragm. The suspension of this friction device is so sensitive and well balanced, that rotation is brought about by even the least movement of the diaphragm. But this movement is in one direction only, owing to the inequality of radial distances of the two copper barbs.

No matter how feeble the vibrations of the diaphragm may be, there will be a sort of strengthening of this vibratory movement on the part of the friction device which will grow strong enough to announce the call to the operator. The pressure of the friction carriage on the diaphragm can be governed by a set screw. The front of the headquarters switchboard is shown in Fig. 4. It can receive either lines with a single wire or lines with double conductors. The single-conductor lines are connected to the series of terminals marked $L_a$. Their common grounding is made at the terminal $T$, provided that previously the button corresponding to the ground connection for each line has been pressed down. The lines with two conductors are connected to the terminals marked $L_a$ and $L_b$ and the ground-connection buttons need not be pressed. There are 10 monocords, 10 call jacks, 10 intercommunication jacks which correspond respectively to these 10 lines.

There are moreover two transformation jacks with single cords used for connecting lines with single and lines with double conductors. If it should happen by error that the operator was trying to make a connection between a single line wire and a double conductor line without using the transformation jack, a buzzer (two coils of 10 ohms), would be automatically operated to call attention to this error. Fig. 5 shows this buzzer in the diagram. The monocords are also used with three conductors: when the grounding button has been pressed down, the conductor 3 of the monocord is connected at the same time to earth and to the terminal of the buzzer. When the grounding button has not been used, the conductor 3 of the monocord is connected to the + pole of the battery of the buzzer. Let us then look at the position of the various parts of the set when a wrong movement has been made by the operator. Starting out from the + pole of the buzzer battery we come to the third conductor of the double cord, then to the point of the inter-connecting jack of the single wire line, to the buzzer, then to the — pole of the battery of the buzzer, whereupon the latter buzzes. The transformers used for these army sets have four coils, each composed of 200 turns of 16/100 mm. wire, having a resistance of 100 ohms.

The operator's telephone set is connected to the switchboard through two terminals at the upper end on the left of the switchboard and the jack used by the operator is on the left side of the keyboard.

The field telephone sets of the German army can be expanded still further by adding a magneto set, a magnetic bell system, a lightning arrester and a condenser set. The apparatus can be connected with the small switchboards just described or else even to larger switchboards as used in ordinary exchanges.

The disposition of the apparatus is such, that any

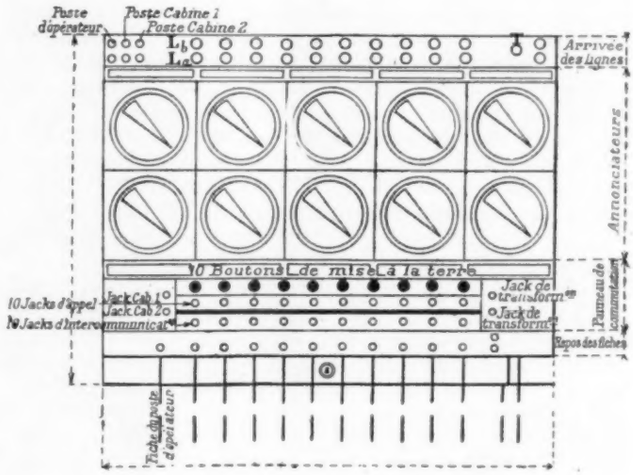



*Fig. 4. Larger Switchboard for Headquarters Use.*
*"10 boutons de mise à la terre" = 10 buttons used for ground connections; "jacks d'appel" = call jacks; "panneau de commutation" = switchboard field; "annonciateurs" = announcing drop discs; "arrivée des lignes" = incoming lines.*

terminal station on the line can connect itself either for conversation or merely as a listening post with any other terminal or with any other intermediate station. If the listening position is taken, the post has its receivers in series with the magnetic call system, in order not to weaken too much the call current flowing between the

extreme end posts and the microphone circuit which remains open.

The condenser can be introduced either into the speaking circuit, or into the signal circuit, or into the combination of both circuits. The condenser is thrown into the speaking circuit, when the apparatus works in conjunction with posts that are provided with automatic signaling devices. The condensers are likewise used when connection is made with troop trains, for there will always be several sets on the same line. If two stations speak together there would be little resistance on the line; if, in case of danger, a third set wished to enter into the line of communication, these call currents would be absorbed by the two stations that were speaking and the bells would not ring at the other stations. The condensers used in these instances decrease this inconvenience in a certain degree.

According to the instructions found in some of the surrendered telephone service manuals the field telephones using magnetic call current can give good service even when 30 stations are along one line provided with the switchboard service mentioned before. But to call the 30th station it would be necessary to use a fairly strong relay every tenth station.

One significant fact was noted by the observers who studied the German field telephone, and that was the shortage of certain materials, as employed ordinarily in telephone apparatus. In many cases copper parts were not made of pure copper, but were made of a composition of zinc, aluminum or some other alloys which might at the worst be used to make a fairly satisfactory substitute for the rare copper.

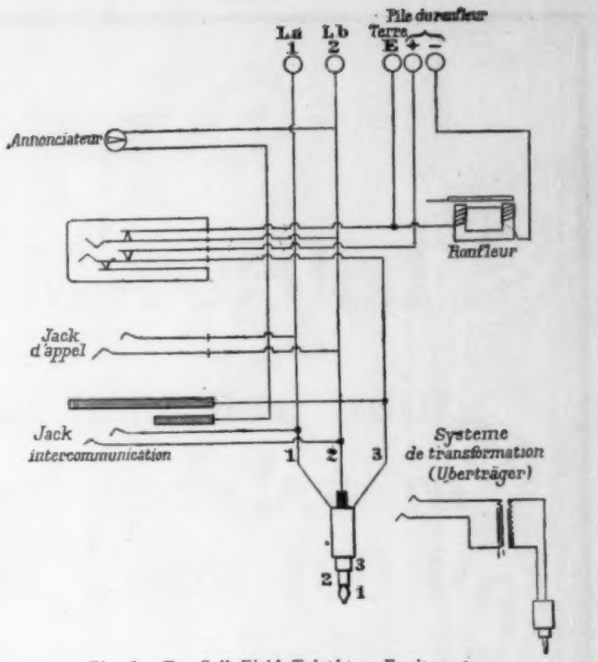



*Fig. 5. Ten-Call Field Telephone Equipment.*
*"jack d'appel" = call jack; "ronfleur" = buzzer; "pile du ronfleur" = buzzer battery; "terre" = earth.*

Fig. 5 shows a system of field telephones that can connect with stations in ten different directions, using monocords.—*Annales des Postes, Telegraphes et Telephones.*

## The Physiological Effects of Electric Currents

*(Concluded from June)*

JELLINEK in Vienna found effects of contact with direct currents to show in diseases of the cerebral region and of the brain. This, however, does not seem to be the rule and an isolated case, as that mentioned of a man who became an imbecile after having come in contact with a direct current conductor, is no doubt due to chance rather than to the current.

There is no doubt, however, that contact with current-carrying conductors can result in very serious affections on the general state of health of the victim. But that direct current has a different effect from alternating current is not at all certain. It might be assumed that an electrical accident might even cure cases of paralysis in exceptional cases, but that it can cause paralysis is rather strong. Jellinek tells of a case in which an electrical worker saved his life through extraordinary presence of mind. His hands came in contact by accident with the two poles of a 440-volt d. c. installation. He was able to bring about a short circuit, by bringing the two poles together with the utmost exertion of his strength. If direct current can bring about incurable diseases by electrolysis, why not in this case also?

There is no doubt that many persons are injured in direct current plants who bear no permanent injury through their experience. Palpitation of the heart, general debility and insomnia have been noted just as much in patients who have been in contact with an alternating current system.

The sensitiveness of various kinds of animals towards electric current differs quite a little. Jellinek succeeded in killing horses with current as low as 110 volts, provided the electrode was placed in the mouth and in the rectum. Arloing, however, found that he could kill horses only with 500 volts after a minute or a minute and a half of contact, provided the negative electrode was connected with the ground and the positive electrode was in contact with one of the hoofs. There are cases where horses died even with 65 volts, if the current passed between fore and hind feet, and if the horses were standing on wet ground. The same thing is true of cows. Cold-blooded animals are said to be less sensitive to current.

Can the observations made with animals be applied to men as well? Let us see what experience we have had with electrocutions in our prisons. The first reports dating from the year 1890 were not of a nature to favor electrocution as capital punishment. As we know, the electrodes are placed on the head or on the back and at one of the upper portions of the leg The current used at first was 102.3 or 204.6 periods a. c. and of 1,600 volts. In one of the first cases where this method of capital punishment was applied the victim was exposed to the current for 17 seconds. But after 30 seconds life seemed to return. Then the current was applied for 70 seconds and a smoke column appeared at the spinal column, death resulting. Later after various unfortunate experiences the current was changed to one past 1500 volts for first application, followed by a lower one of 150 volts. Dissection showed that high-tension current brings about a stupefying effect accompanied by suspension of respiration and heart failure, not bringing about imme-

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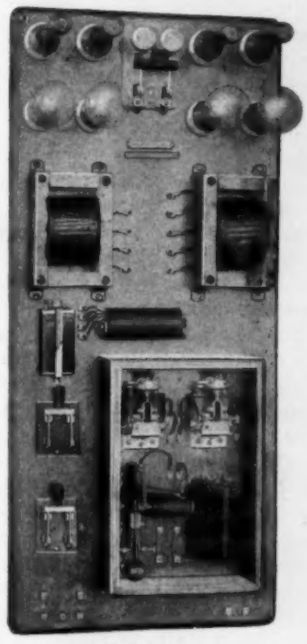

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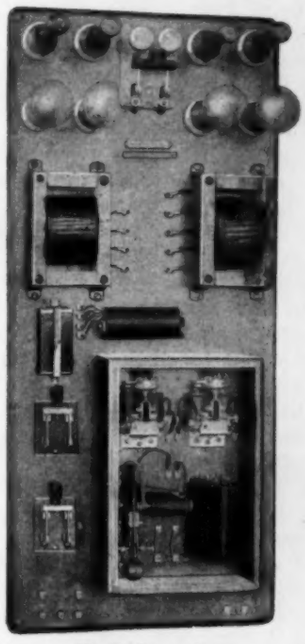

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diate death. On the other hand low-tension current brings on immediate death through heart failure.

Experiences due to observations at electrical accidents seem to confirm this opinion. There have often been cases of people with terrible burns, due to contact with high voltage equipment, who remained alive; and on the other hand there have been many cases of accidents with fatal results where the victims came in contact with low voltage equipment, and showed no outward signs of wounds or burns at all.

Within what limits electrical current is deadly in regard to the action of the heart has not been determined as yet. Fortunately the limits seem to be fairly narrow. Accidents in mines where electrical system is used seem to bear out this contention. With a. c., light contact of the overhead conductor with the head seems to be sufficient to cause death, without leaving outward appearances of wounds. But if the conductor is grasped with both hands, the victim may save his life even though bearing off severe burns. In direct-current mine systems fatal accidents through mere contact of the conductor are rare, but they are frequent if the conductor is firmly grasped with the hands or in case of contact through some metallic tool which the workman is carrying.

We might summarize experiences by stating that the hope for resuscitation are the smaller in proportion as the traces of burns or wounds are the slighter. Often correct treatment of resuscitation of the unconscious person may lead to good results, if taken up properly and quickly enough. No success can of course follow if vital organs have been burned by the current. But the best plan is to try reviving treatment and keep this up for at least two hours.

The causes of death according to Battelli are functional disturbances, not anatomic, and he states as proof that man and animal, unless dead right after the contact, usually revive, even if artificial respiration should have to be resorted to. If anatomic changes had been brought about by the accident the victim would show evidences of them.

Jellinek takes the opposite viewpoint, stating that death is due to anatomic changes of the nerve center, confirmed by microscopic changes in the body. Most observers oppose this viewpoint, saying that the microscopic changes observed by Jellinek are due to changes in the body through death and are not due direct to the electrical charge. The latter, however, insists on one point, and that is, that death in most cases of electrical accidents is only apparent and that immediate attempts at artificial respiration will often result in saving the victim. He claims that real death results after a period of 2 to 10 minutes after the first contact, due either to lack of blood supply to the cerebral regions or through lack of air supply to the respiratory organs.

There are two methods of resuscitation, the Shaefer method and the Sylvester method. In the former, the victim lies on his abdomen and the first aid helper presses the chest and compresses it at regular and rhythmic intervals to help along respiration. The advantage of this method is said to be that it does not tire out the first aid and that the tongue is not in the way of the patient to choke him.

The Sylvester method has the patient lying on his back and the arms are moved rhythmically over the head and down to the sides helping respiration in this way. If properly applied this method is probably the better and is not as tiring as is often intimated.

As regards the use of mechanical respiratory apparatus, which supplies the lungs with oxygen, these cannot replace the human aid given by the usual respiratory attempts by moving the arms and giving the lungs a chance to take up work again. After all, it is not the quantity of air that is supplied to the lungs, but the mechanical movement of the respiratory organs that will lead to the latter taking up their action again and bringing the victim back to life.

## Kingsbury Suggests Legislation

Enactment of permanent legislation validating the present increased telephone toll rates and placing the telephone systems of the country under federal regulation so as to prevent financial embarrassment of the system when they are returned to private ownership was urged before the senate interstate commerce committee by N. C. Kingsbury, vice-president of the Bell Telegraph and Telephone Company.

"If these properties are returned to us now," Mr. Kingsbury continued, "and nothing is done by congress to invalidate the increased rates, you can be very sure the wage increases to employes will stay where they are. There even may have to be further increases. We fear much, however, that the state commissions may require so much time to act upon the present rates that we may be thrown into hopeless confusion and financial embarrassment."

If permanent legislation is now impossible, Mr. Kingsbury said, the telephone companies "certainly think the present rates—rates approved during government control—can be validated until the proper authorities can see if those rates are correct."

"You mean," interrupted Chairman Cummins, "you want those rates kept in force until the commissions of the several states can inquire into their fairness?"

"Exactly. I think congress should correct its blunder."

"What blunder?" asked Senator Kellogg of Minnesota.

"The failure to say where the rate-making power resides. For congress to take these $100,000,000 properties and hand them over to a governmental department without making clear the rate-making power seems to us to be a thing congress should correct."

Questioned regarding revenues of the Bell properties under government operation, Mr. Kingsbury said the government lost $9,623,477 from August 1, 1918, to last May 1, under the contract made with the Bell company.

## Inter-States Goes Out

The Inter-State Telephone Company will go out of business by July 1, leaving the field at Aurora, Ill., to the Chicago Telephone Company, it is reported. W. O. Rhode, local manager for the Inter-State company, would not comment upon the report.

The Chicago Telephone Company interests some years ago bought a majority of the bonds of the Inter-State company but was not permitted by law to consolidate the companies.

As a mortgagor, however, it will be able to seize properties of the Inter-State when it goes out of business.

# Radio Telephony

***Presented at the Convention of the American Institute of Electrical Engineers****

BY E. B. CRAFT AND E. H. COLPITTS

**COMMERCIAL Development — Vacuum Tubes**—While the vacuum tubes that had been developed in the 1915 and 1916 experiments were satisfactory in operation under normal conditions, it was found that the mechanical vibration encountered in the air was such as to necessitate special structures to withstand them. New forms of vacuum tubes, which successfully met these requirements, were developed. Fig. 18 shows the receiving tube in which the elements are supported in a metallic framework, thus eliminating a great deal of breakage which occurred in the earlier structures. The first form of power tube developed was later followed by the type shown in Fig. 19.

The vacuum tubes used in all this work were of the so-called "Wehnelt Cathode" type; that is, the electron-emitting cathode consisting of a metal filament—usually platinum—coated with a mixture of oxides which, when heated to a moderate temperature, gives off electrons in great numbers. When properly constructed and treated, such a type has several great advantages:

1. For a given electron emission, the temperature is not so near the point of destruction due to evaporation, etc., as in the case of a pure metal—for instance, tungsten. The result is longer life in operation.

2. For a given change in filament current at working ranges the change in electron emission is smaller in the case of the Wehnelt cathode, permitting of closer regulation in power output.

3. Evaporation of the filament does not go on so rapidly, consequently its electrical behavior is more uniform throughout its life.

4. The electron emission for a given amount of energy supplied to the cathode is larger, resulting in more economical operation of the sets.

It was found that for transmitting and receiving purposes, two types of tube were sufficient. The tube for receiving purposes was designated as VT1 by the Signal Corps and as the CW933 by the Navy. A transmitting tube capable of delivering a moderate amount of power—say from 3 to 5 watts high-frequency output—was known as the VT2 by the Signal Corps and as the CD931 by the Navy. Vacuum tubes are defined, as far as electrical characteristics in normal operation are concerned, by plate and filament voltages, plate current with normal plate voltage and zero grid voltage, normal filament current, filament life at this current, and by what is known as the amplification constant, which is approximately the ratio, $\mu$, of that change in plate voltage which produces a given change in plate current to the change in grid voltage to produce the same change in plate current.

Some of these relations are conveniently shown in characteristic curves. The plate current-grid voltage characteristics of the *VT1* and *VT2* tubes are shown in Figs. 20 and 21. On these illustrations are given also the other data mentioned above.

As indicating some of the problems involved in the commercial production of this entirely new type of equipment, it is interesting to note that prior to August, 1917, the total output of commercial vacuum tubes of this general type was approximately 200 per week, their use being practically confined to long distance wire telephony and to radio detection purposes. On November 11, 1918, deliveries were being made at the rate of 25,000 per week. This involved the organization of equipment and personnel to do a class of work for which there was practically no experienced talent available and the situation in many features was analogous to that in connection wtih airplane production.

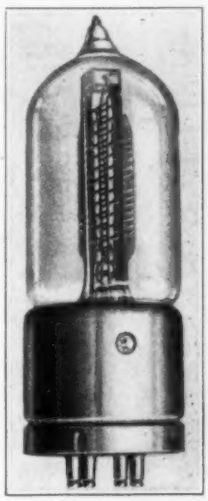


*Fig. 18. Western Electric Receiving Type Vacuum Tube—Army and Navy Standard.*

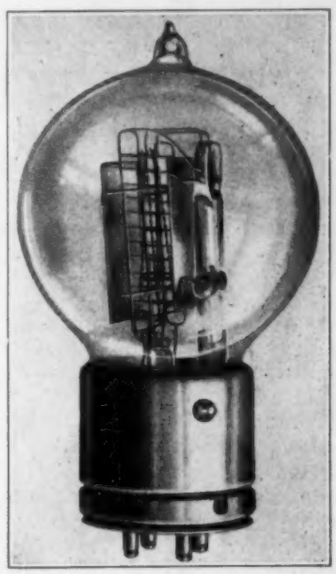


*Fig. 19. Western Electric Transmitting Type Vacuum Tube—Army and Navy Standard.*

### APPARATUS

Tests of the first standardized sets for Signal Corps use were made at Langley Field on October 6. These sets operated very successfully and official demonstrations of two-way communication were made. This set was made up of a combined control panel and receiver with two stages of amplification and a separate transmitting set, the electrical connections being made by flexible cords. By means of a multi-contact manual switch located on the control panel, the operator can receive or transmit as desired. The receiver consists of a single tuned circuit of the very simplest type and the tmplifier is made adjustable for the convenience of the observer.

While the original requirement was that communication should be maintained at a distance of 2,000 yards, all of the tests indicated that successful communication could be obtained at much greater distances. On October 16 an official distance test was made, and communication between planes was maintained at a distance of 23 miles, and from plane to ground, 45 miles. The conditions under which these tests were made were extremely favorable, and are noted merely to show the possibilities of this particular

*Began in May number.

equipment. The figure that was finally established as being representative of what would be required in service, was three miles.

A number of sets were immediately constructed, and complete equipment sent overseas with Signal Corps officers, where they were submitted for the criticism of our military forces.

Several more demonstrations of this apparatus were made, culminating in the official trials at Dayton, Ohio, on December 2, 1917. There were present members of the Aircraft Production Board and the joint

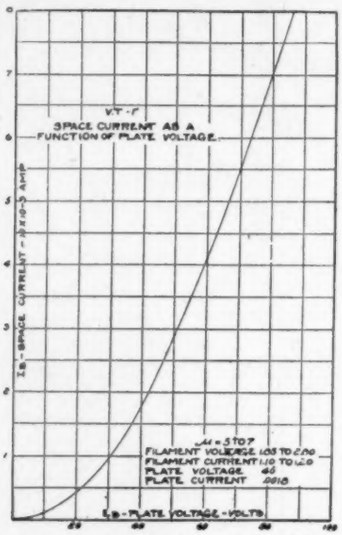

V.T.-1
SPACE CURRENT AS A FUNCTION OF PLATE VOLTAGE.
μ = 5107
FILAMENT VOLTAGE 1.05 TO 2.00
FILAMENT CURRENT 1.10 TO 1.20
PLATE VOLTAGE 40
PLATE CURRENT .0018
Eb - PLATE VOLTAGE - VOLTS

*Fig. 20. Characteristics of Receiving Tube V T-1.*

Army and Navy Technical Board, and various Signal Corps officers. The demonstration consisted of a three-cornered conversation between two planes in the air and a ground station. At the ground station a loud speaking receiver was connected to the radio set in such a way that the entire party of about thirty could overhear the conversation between the fliers and also the speech between the planes and the ground. Under orders transmitted from the ground station, the fliers performed various evolutions in the air, and the observers could see these orders carried out and hear the acknowledgments. In these tests the pilot and observer in each plane were also connected, so that there were five people in constant communication. The maximum distance of the planes from the ground station was about eight miles, at which distance they were invisible. These tests so conclusively demonstrated the possibilities of the successful use of this apparatus that quantity orders were immediately placed by the Signal Corps.

The time elements were very short and the problem of adapting the designs to commercial quantity manufacture were many and intricate. This probably is the first instance on record in which the production of radio apparatus, either telephone or telegraph, has been put on a manufacturing basis, in quantities comparable with that obtaining in ordinary lines of electrical manufacture.

The apparatus represents not what would be designed and built under normal conditions with time available for proper study of all the technical features involved, but the best compromise, bringing in such factors as the use of standard parts, available manufacturing facilities and finally the imperative need of haste.

Informtion from abroad was at times conflicting and inadequate, so that the Signal Corps officers in Washington were often required to render decisions on important points under exceedingly difficult circumstances. We are greatly indebted to Lieut. Col. N. H. Slaughter and other officers of the Signal Corps for their effective coöperation in the solution of difficult problems arising from all these causes.

The final standardized form of two-way airplane set is known by the Signal Corps as the SCR-68 set. Fig. 22 shows the complete equipment for a two-place airplane. The elements are so arranged that they can be mounted in the space available in various parts of the machine. The main set, however, necessitates being accessible to the operator.

The switch box, shown in the center, is to provide for communication between pilot and observer by means of the same helmets and microphones as are used for radio communication. This is one of the interesting by-products resulting from the radio development. Heretofore the only practicable means of communication between pilot and observer was by means of manual signals. With the telephone equipment, satisfactory intercommunication could be proveded at all times. This has been found very useful in connection with the training of fliers as well as in military operations.

The transmitting and receiving set is approximately 17 by 10 by 7 in. in dimensions, and weighs 21 lb. The generator is usually mounted in the slip stream of the propeller on one of the struts of the landing gear. The weight of the complete equipment, including generator and two operators' sets, is approximately 58 pounds.

Fig. 23 shows, in simplified form, the electrical circuits.

When receiving only is required, the transmitting

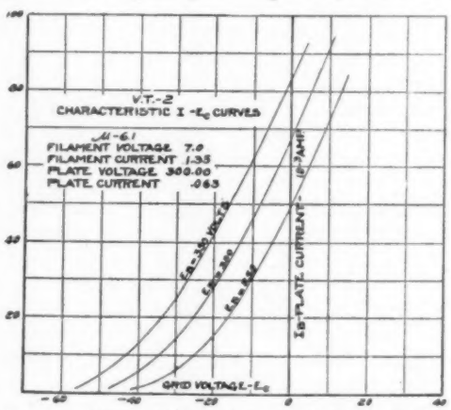



*Fig. 21. Characteristics of Transmitting Tube V T-2.*

portion is omitted, and power is supplied to the filaments by a small storage battery.

Modifications of the SCR-68 sets adapted to different classes of service were developed and manufactured, one of the principal adaptations being a combination transmitting and receiving set for use on the ground. This is illustrated in Fig. 24. This set was employed principally for training purposes. With this means of communication at hand, the performance of the student could be observed in the air and his faults could be corrected by the instructor on the ground,

thus greatly accelerating this training work. Energy for this set was provided by storage batteries, a dynamotor being operated by the storage battery to supply the plate potential.

Up to the time of the signing of the armistice, many thousands of these sets had been manufactured and delivered.

### SHORT WAVE TYPE

Since the first experiments the trailing wire antenna had been employed and wave lengths of from 200 to 500 meters were used. It was realized that a long trailing wire antenna was not well adapted for use on military airplanes for tactical reasons, and it would be very desirable to limit the physical dimensions of the radiating system. This, of course, implies a corresponding reduction in the length of wave radiated if an efficient system is to be used, and steps were taken to design such a set. There is no difficulty in securing extremely short waves with the vacuum tube oscillator but there is some difficulty in designing a very compact set, with wave lengths adjustable over a considerable range and containing amplifiers and modulators, and at the same time avoiding excessive losses. In October, 1917, some laboratory sets were made for wave lengths of the order of 70 to 150 meters, and early in 1918 the Signal Corps requested the development of a short wave set. This was built in April and was electrically essentially the same as the longer wave sets except for minor changes due to the use of higher frequencies of the order of 4,000,000 cycles.

Trials of this system were made at Camp Alfred Vail at wave lengths of 60 meters and above. The

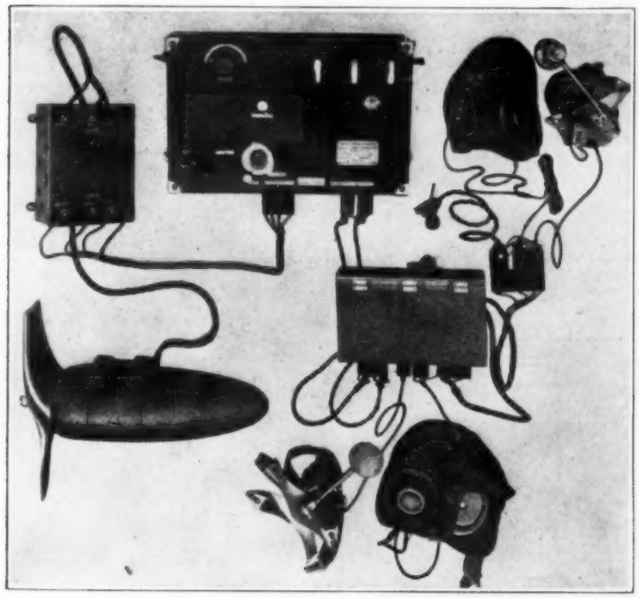


*Fig. 22. Complete Western Electric Radio Telephone Equipment for Two-Place Airplane—Signal Corps Standard SCR-68.*

antenna first used was a very short structure on the top of the plane with two wires extending to the tail. This antenna had a natural wave length of 32 meters and a resistance of only one ohm. To increase the radiating qualities the rear portion of the antenna was raised and the resistance thereby brought up to nearly 3 ohms at 75 meters. This structure did not materially increase the head resistance of the plane and did not interfere with its operation. As described later, this form of antenna was soon replaced by another.

The use of short wave lengths brings forward prominently the problem of location of component parts of the set in the plane, for a few unnecessary feet of connecting wire carrying these high frequency currents may cause the failure of the set. For this reason considerable thought was given to the question of loca-

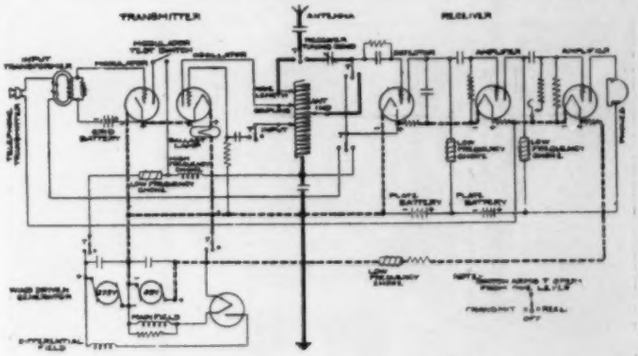


*Fig. 23. Schematic Circuit Diagram—Radio Telephone Transmitting and Receiving Set—Signal Corps SCR-68.*

tion of transmitter and control box. The final form of these short wave sets, and it will be observed that the multiple unit plan of assembly has been carried further than heretofore, and this was due to the fact that difficulty was encountered in mounting the SCR-68 type set in the single place combat planes.

### RADIATING SYSTEMS

The whole subject of proper radiating systems for use on planes was one to which more time should have been applied than was available at the time of development and manufacture of the first apparatus. A considerable amount of work, however, was carried on and valuable data obtained. This work was started in the summer of 1917 at Langley Field, and was later transferred to Camp Alfred Vail, N. J. The work was in charge of Mr. A. A. Oswald of the Western Electric Company under the direction of the Signal Corps, and resulted in the accumulation of a considerable amount of useful data on many types of antenna. There are three important conditions to be met in designing an antenna for use on airplanes.

1. It must be an efficient radiator.
2. It must not be directive.
3. It must not interfere with complicated evolutions of the plane.

The third condition practically prohibits the use of a long trailing wire with a weight, because of the danger of fouling the propeller. This type of antenna is also quite directive.

The details of this antenna investigation should properly be covered in a separate paper. It may be well to state, however, that the best system, all things considered, was found to consist of two short unweighted wires, one from each wing tip. The two wires were joined in parallel above the fuselage, and worked against the conducting portions of the plane as a counterpoise. It was found that the use of one such wire as antenna and the other as counterpoise was not good.

In Fig. 25 the distribution of intensity of radiation is shown with the single long trailing wire and the two wire type of antenna.

### IGNITION INTERFERENCE

Another problem arose when sets began to be installed. This was that of noise in the receiving sets due to the engine ignition, and was very serious in some cases. Its solution was complicated by the fact that it was not allowable to alter the plane equipment in any way, for instance, by changing the position of one magneto to secure greater shielding, but it was found that by covering the ignition wires with a flexible conducting tube grounded at intervals this trouble could be practically eliminated.

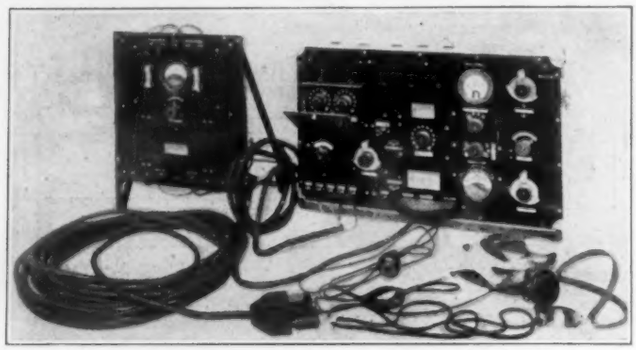


*Fig. 24. Radio Telephone Transmitting and Receiving Set for Ground Use—Signal Corps SCR-67.*

It was found that in some cases the ignition spark started in the ignition system high-frequency oscillations which were of proper frequency to affect the receiver. This happened on the submarine chasers, which are driven by gasoline engines, and the trouble was remedied by inserting small iron core choke coils in the ignition leads to change the frequency of the oscillations. It is obvious that the "radio signals" sent out by the ignition spark are many millions of times more intense than those to be received and it is remarkable that they do not entirely prevent reception. As a matter of fact, successful airplane telegraphy has been carried on in an experimental way by using the ignition magneto as a radio transmitter.

### SUBMARINE CHASER EQUIPMENT

During the war important use has been made of the wireless telephone in connection with naval work. Small 110-ft. craft had been largely employed in connection with anti-submarine operations. In order to make the most effective use of the various listening devices, and to coördinate the operations of the various units, it is very necessary that instantaneous and direct communication be established at all times. Under the direction of the Special Submarine Board of the Navy Department, modified forms of radio telephone equipment were developed for this purpose. Early in November, 1917, the first practical trials were made, and satisfactory operation between chasers approximately five miles apart was obtained. These trials demonstrated the extreme value of this means of communication and sample equipments were immediately dispatched overseas for further trials under actual war conditions.

The circuits of this set are practically the same as the airplane equipment, except that power is obtained from small dynamotors operated from the 30 volt storage batteries with which the chasers are equipped. The set itself is located in the radio room, where it can be attended to by the regular radio operator. A telephone transmitter and receiver is, however, located in the pilot house so that the commanding officer can hold direct conversation with other vessels. The radio operator monitors the conversation and performs all tuning operations, thus leaving the commanding officer free to use the radio telephone as an ordinary wire line, except that he must press a button located at the side of the telephone when talking. The ordinary telephone head set is supplemented by a loud-speaking telephone receiver, which makes it possible for incoming signals to be heard without the use of head gear. Fig. 26 shows an assembled view of the various elements that go to make up a standard submarine chaser equipment. To provide sufficient energy for operating the loud speaking receiver a three-stage amplifier connected to the output side of the radio set is required. It is possible to connect the receiving portion of the radio set to either the ordinary head receiver or to the amplifier with its loud speaker. Fig. 27 shows a close-up view of the radio transmitting and receiving set proper.

This equipment has an effective operating range of about ten miles when used on the 110-ft. submarine chasers. One feature not incorporated in the airplane sets consists of a wave length control gear by means of which the set can be operated on any one of five different wave lengths, ranging from 250 to 600 meters. This permits of a certain amount of selective operation within a chaser squadron.

A number of problems were met with in connection with this particular application, not the least of which was the suppression of electrical disturbances in the antenna system due to the ignition system of the three propelling engines. Several thousand of these sets have been produced, and practically all submarine chasers sent overseas have been equipped with this apparatus. This apparatus is also being used for short range work on other types of naval vessels, with eminently satisfactory results. Modifications of the airplane type of equipment have also been made for use on naval seaplanes. For some classes of service the demand for longer range work has made necessary the

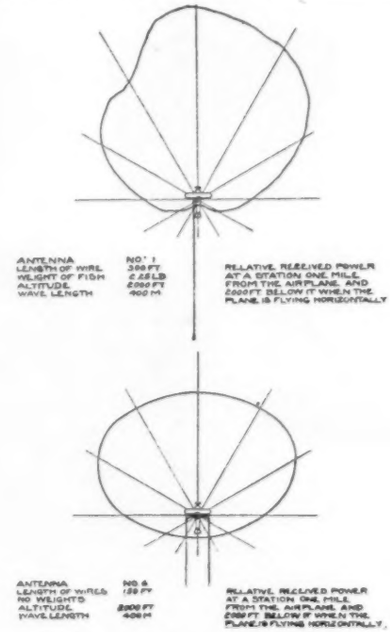



*Fig. 25. Directional Characteristics of Airplane Antenna.*

employment of more powerful types of vacuum tubes.

The foregoing covers the most extensive application of vacuum tube radio-telephony, the same general type of circuit and apparatus being used for short range telephony and telegraphy on land and water and in the air. For reasons already mentioned, quantity production has been limited to the earlier models, in spite of the fact that investigations carried on during production have indicated many changes which would improve the electrical and mechanical efficiency of the apparatus.

### THE FUTURE OF RADIO-TELEPHONY

The possibility of communication by speech between any two individuals in the civilized world is one of the most desirable ends for which engineering can strive. For this reason it is particularly desirable to form some opinion of the part which radio-telephony may play in securing this universal service. It is clear that the elimination of the Morse operator, which is accomplished by the use of radio-telephony rather than radio-telegraphy, is necessary for universal and direct communication.

Radio-telephony and wire-telephony offer several sharp contrasts. The latter requires fixed channels of communication whose construction and maintenance necessitates an accessible path between stations, but the results obtained include secrecy, power efficiency, selection of a desired station and freedom from interference. A large item of expense is the line. On the other hand radio-telephony requires neither fixed nor accessible channels and no cost at all for line construction and maintenance, but it is non-secret in the practical sense of the word, its power efficiency is low, selection is at present not practicable except in a limited way by wave length, and freedom from interference is not at present an attained fact. Thus while the two systems may be contrasted they are not comparable but each is useful in its own field. It is easy to see that radio-telephony can never compete with wire-telephony in densely populated districts, while wire-telephony is a physical impossibility at sea and in the air. Fortunately, however, the connection of a wire

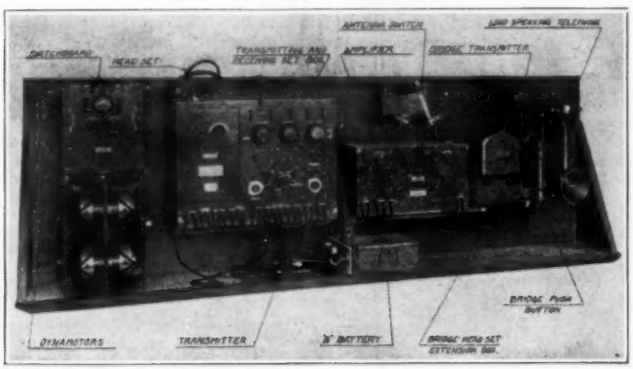



*Fig. 26. Complete Western Electric Two-Station Radio Telephone Equipment for Submarine Chasers—Bureau of Steam Engineering Standard CW-936.*

system to a radio system is no more complicated than connecting two wire lines by means of a repeater and therefore these two fields, although distinct, are adjacent. Leaving aside for the moment the particular methods by which radio telephone communication is to be carried on, it is clear that the establishment of communication between two given individuals will be most efficiently realized through the use of a combination of wire transmission on a network extending over perhaps 99 per cent of the stations and radio transmission to those relatively few stations to which it is either impossible or impracticable to build lines. These stations will be of two kinds:

1. *Moving,* such as ships, airplanes, trains, trucks.
2. *Fixed but inaccessible,* such as on islands, in deserts and in very sparsely settled regions.

A third class of service is that which is concerned,

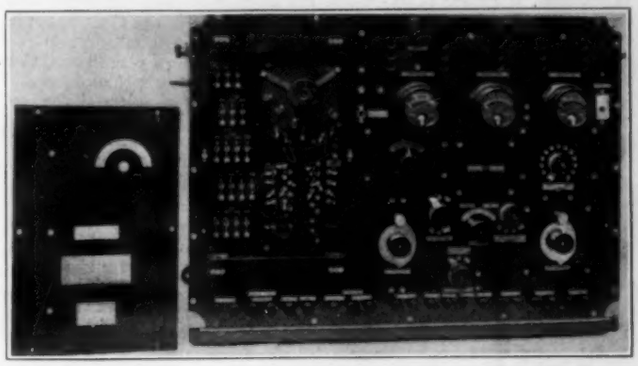


*Fig. 27. Submarine Chaser Type Transmitting and Receiving Set Box—CW-936.*

not with single individuals, but with groups; such service as the broadcasting of news, time and weather signals, and warnings. In some cases one objection to radio-telephony would be an advantage in this class of service.

The choice of the particular kind of transmitting apparatus which will ultimately be used in thus extending the range of communication will involve careful consideration of costs and other engineering factors; its feasibility has, however, been conclusively demonstrated.

## Increase of Swiss Rates

According to the *Thurgauer Zeitung,* the project of the Swiss Federal Council to increase the telephone rates provides that the annual charge shall be in proportion to the distance and to the number of subscribers. For a distance of 2 kilometers (1.24 miles) the cost will be 70 francs ($13.51 for less than 300 subscribers and 80 francs ($15.44) for 301 to 1,000 subscribers; for a distance of 3 kilometers (1.86 miles) the cost will be 100 francs ($19.30) for 1,000 to 5,000 customers. The rate for local conversations will be raised from 5 centimes (1 cent) to 10 centimes (2 cent). Rates for out-of-town conversations will also be raised.

The increase of receipts which it is hoped will result from the new rates is estimated to be 9,000,000 francs ($1,737,000).

## Wireless and Morale

Since the armistice brought hostilities to an end it has been learned that the morale of the population of Lille was maintained by news given from a French wireless station hidden from the Germans, according to *Wireless Age.* Good news spread quickly through underground channels. The people knew that 10,000 American soldiers were arriving daily. Airplanes also dropped many leaflets, which were eagerly taken despite German efforts to prevent their distribution.

# Telephone Patents Recently Issued

***A Brief Digest of Those Current Specifications Most Interesting***

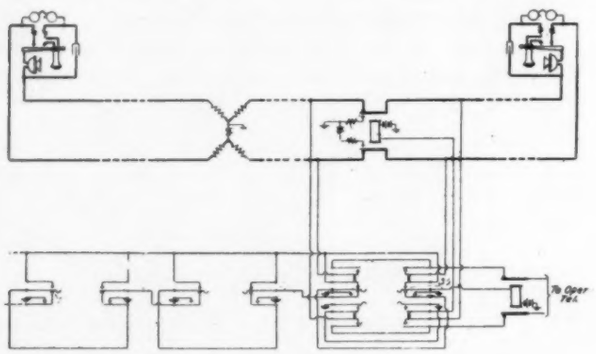
BY DAVID S. HULFISH

NO. 1,295,096. Signaling System. Issued to A. Andersen, assignor to Automatic Electric Company, Chicago, Ill. (Filed, October 24, 1913.) At the central office, automatic switching equipment of the Strowger type is provided for connecting the lines. At the telephones, a ringer is not used, the telephone receiver being left in the line circuit in series with a condenser, it being thus possible to give audible signals through the use of the receiver. When the receiver hook is lifted, the condenser is cut out of circuit and the transmitter of the set is substituted. By the use of loud-speaking receivers, announcements may be made to a selected station without requiring the called station to respond by lifting the hook lever.

1,295,185. Rotary Connector. Issued to T. G. Meyer, assignor to Automatic Electric Company, Chicago, Ill. (Application filed February 18, 1914.) The customary method of selecting one line in a group of lines extending to a private branch exchange, or to one common destination, is to dial for the first line and then to arrange local circuits in the connector for propelling the connector farther if the first line be found busy by test. In this patent, the dial number is the last line of the group, and when an idle line in the group is found, the remaining impulses from the call sender are rendered ineffective and the idle line is seized.

1,295,909. Trunk Circuit. Issued to E. R. Lundins, assignor to Western Electric Company, Inc., New York, N. Y. In a trunk circuit between two manual switchboards, the speaking conductors of the trunk are normally open. The speaking conductors are used for signaling between the switchboards until after the trunk has been connected at both ends, when the conductors are extended by a relay and connected for conversation between the connected subscribers.

1,296,023. Switchboard Listening System. Issued to H. W. Ulrish, assignor to Western Electric Company, Inc., New York, N. Y. A keyboard circuit for manual switchboard, in which an operator is unable to listen upon a connection between two subscribers. Each cord pair has a relay operated by the listening key; when the operator closes her listening key to speak to the calling subscriber, the relay is operated to cut off the ringing plug conductors. There is also a relay for the operator's telephone circuit which is operated whenever two listening keys are closed



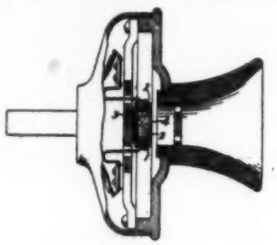
*1,296,023.*

at the same time, so that should the operator close two listening keys, her telephone would be disconnected from the keyboard entirely.

1,296,104. Semi-Automatic System. Issued to H. W. Munsell, assignor to Kellogg Switchboard & Supply Company, Chicago, Ill. The cord-pairs of a manual switchboard are provided with calling keys, one key for each subscriber of a group of automatic lines. The operator manually selects a trunk which leads to an automatic switch having the line desired to be rung, and then by the operation of the proper key causes an impulse device to send impulses to operate the automatic switch to select the desired line in the group.

1,296,679. Ringing System. Issued to J. L. McQuarrie, assignor to Western Electric Company, Inc., New York, N. Y. In an automatic telephone exchange with a machine ringing device, a called line connected between ringing periods must await the next ringing period before being rung. In this patent, fast and slow relays are provided in the connector, and when a called line is connected, the operation of the fast relay connects ringing current, which is cut off by the slow relay, after which the customary machine ringing repeats the ring until answered. Thus a ring is obtained immediately upon connection with the line.

1,296,680. Switch Operating System. Issued to J. L. McQuarrie, assignor to Western Electric Company, Inc., New York,



*1,296,683.*

N. Y. A single source of stepping power is used for stepping the brushes of several switches, the object being to reduce the cost of the plant.

1,296,683. Transmitter. Issued to J. P. Maxfield, assignor to Western Electric Company, Inc., New York, N. Y. In the carbon cell, the electrodes and circuit terminals are at the sides of the cell instead of at the front and back as usual. There is no diaphragm, and the carbon granules are exposed directly to the action of the air waves of sound.

1,297,100. Recall System. Issued to H. P. Clausen, assignor to Western Electric Company, Inc., New York, N. Y. (Application filed March 18, 1915.) A flashing signal under central office control is provided for the calling end of the cordpair, and is controlled by two relays, one of the relays being charged by the insertion of the plug, and the other by the action of the calling hookswitch. A number of patents upon the principle of the flashing signal by central office control have been issued in the few years just past; by reason of the early date of filing this patent application, the claims carried by this patent are very broad.

1,297,251. Automatic Telephone System. Issued to Homer J. Roberts, assignor to Automatic Electric Company, Chicago, Ill. (Application filed June 3, 1901. The patent has 151 claims.) The chief feature of novelty lies in the switch employed in the new system by Mr. Roberts. The switch is not step-by-step, but operates by rocker bars extending across other bars, contacts upon the two kinds of bar being arranged to interconnect when certain controlling magnets at the ends of the bars are operated. The illustrations do not adequately disclose the switch, and are not reproduced in this review, as extended description would be necessary. The switch is substantially instantaneous in its selective action, and is particularly adapted for linefinder service, or for call distributing in a semi-automatic exchange.

## Wireless Telephone for Alaska Packers

Wireless telephone equipment for the canneries of the Alaska Packers' Association on Bristol Bay, Alaska, will be installed immediately, following receipt of permission from the United States Navy Department, according to announcement by A. T. Tichenor, secretary of the company.

When the association first made application, the navy officials replied that the radio field was to be reserved for destroyer and airplane communication. This order was modified because the wireless apparatus in remoter sections of Alaska would not interfere with government work.

This ruling, however, will interfere with proposed wireless telephone systems on the Pacific.

# Of Interest to the Trade

## Exhibits at the Convention

*Ackerman-Johnson Company,* Chicago. Expansive screw anchors, expansion bolts, Phillips spring hammer drills. Represented by William A. Stein, J. L. Johnson and C. N. Ackerman.

*American Electric Company,* Chicago. exhibited in the writing room on the ground floor of the hotel. General line of telephone equipment, new cradle set and new table set. Distribution of cradle sets to exchange representatives, including one set finished in gold, silver, and celluloid white. Represented by P. C. Burns, W. W. Kideney, F. B. Boice, J. J. Speed, H. B. Malloy, E. L. Brown, W. T. Curtis, F. J. Riehlman, R. B. Nicholson.

*Julius Andrae & Sons Company,* Milwaukee, represented by H. S. Greene, F. N. Adams and Russell Murphy.

*Automatic Electric Company,* Chicago, H. A. Harris, W. F. Benoist, N. P. Bartley, T. C. Thompson, Roy Owens, M. B. Evans, Fred L. Baer, E. L. Grauel, R. H. Burfeind, L. A. Cutshall, A. F. Combs. Exchange systems, community exchange boards, private automatic exchanges, automatic long distance operation.

*Auto Reel Manufacturing Company,* Rankin, Ill., auto wire reel for taking up or paying out telephone wire. C. G. Reuter was in charge.

*Barrett Company,* Chicago. Carbosota creosote oil, coal tar products. Kurt C. Barth, Miss E. E. Finley.

*Belden Manufacturing Company,* Chicago, exhibit of manufacturing processes, machine used in applying outer braid of silk or cotton to cords, coil-winding machine for exchange or manufacturing use. "Beldenamel" magnet wire, cords, rubber-covered wire and molded insulations. R. A. Peet, E. F. Gibbs, George Routzahn, C. L. Way.

*Bowdle Accounting System,* F. A. Bowdle, Cerro Gordo, Ill.

*L. S. Brach Manufacturing Company,* Newark, N. J., D. S. type, self-cleaning, high capacity arresters for telephone protection. Godfrey Gort, Glenn W. Smiley.

*Chance Manufacturing Company,* Centralia, Mo., telephone specialties, Never Creep anchors, back trusses, terminal and angle brackets, Sky Rocket and 400 companion lightning arresters. J. J. Milligan, A. B. Chance.

*Coffey System & Audit Company,* Indianapolis, J. W. Coffey, E. W. Hykes.

*Frank B. Cook Company,* Chicago, Cook sleeves, new central office protector No. 100, discharger having adjustable air-gap to be used in connection with a carbon block, three new pole cable terminals, standard protector. George R. Folds, J. M. Moore, John F. Jaap, Jr., Chester Ruth.

*Craven & Berry,* Dayton, Ohio, telephone directory publishers and advertising agents, Loren M. Berry.

*Electric Storage Battery Company,* Philadelphia, used in telephone exchange batteries, automobile starting and lighting batteries, small cells used in airplanes and the Exide submarine cell. William Heritage, G. H. Atkin, J. Fitts, W. L. Burroughs, John N. Rosholt, W. E. Dunn, H. M. Beck.

*Electrical Instrument Repair Company,* Chicago, rebuilt test sets, telephones, measuring instruments. Charles Nemec, H. W. Doolittle, H. B. Bolton.

*Franco Battery Company,* St. Marys, Pa., J. J. Dreyfuss. Telephone dry cells, 50 packed in a barrel, Franco flash lights.

*French Battery & Carbon Company,* Madison, Wis., flash lights for troublemen, switchboard men, and general use, Standard No. 6 telephone dry cell equipped with new spring clip. J. S. Kandy, A. L. Thompson, G. H. Riebeth, O. H. Erlach, K. J. Helmholtz, F. J. Foster, E. A. Hallim, J. C. Ford, Frank L. Eldridge.

*Hallett Iron Works,* Harvey, Ill., improved steel gain, for attaching cross arms to poles without the wood. J. A. Hallett.

*Holtzer-Cabot Electric Company,* Brookline, Mass., and Chicago, power ringing and charging apparatus, bells, annunciators, exchange telephones, intercommunicating telephones, fire alarm systems, hospital signaling equipment, electric fans, water-tight telephone used by the Navy. C. I. Hickman, Walker Calderwood, Robert Hall, E. Newton Wells, B. C. Brown, T. G. Meinema, H. L. Hertz, S. E. Klunder, E. L. Morse.

*Indiana Mill & Lumber Company,* Chicago, sections of Dixie brand Southern white cedar poles. Willis H. Gilbert.

*J. K. Johnston,* Indianapolis, Ind., appraisal forms.

*Kellogg Switchboard & Supply Company,* Chicago, Kellogg service switchboard, magneto, common battery and automatic interior telephones, magneto private branch exchange equipment, cordless and universal type switchboard; products manufactured for the government, standard test sets; monotype switchboards, standard Kellogg field switchboards, field buzzer telephones, standard residence and desk set types used in camps and war department, samples of firing coil, voltage regular relay, condenser and timing contact breaker of the Liberty motor, ignition and lighting switch for standardized military truck, switchboard lamp test. J. F. Tomkins, J. A. Waugh, M. J. Corwin, J. D. Duncome, E. R. Downes, J. B. Edwards, W. R. Brewer, R. C. Ridpath, H. D. Currier, Harry Ide, W. S. Boze, C. R. Brown, A. O. Clingman, M. H. Croswell, H. B. Dudley, J. B. Haley, H. W. Hogue, S. W. Holmes, C. Prueitt, Fred Seeley, W. B. Stewart, C. M. Thompson, E. I. Pratt, D. B. White, H. Clark, H. A. White, Ben Woodbury, H. D. Hurlbut, E. F. Woodward, D. J. Gillespie, G. D. Wolf, O. F. Cassoday, M. B. Stazak, C. W. Nelson, R. H. Stracke.

*Leich Electric Company,* Genoa, Ill., new steel cabinet, central-battery telephones, wall and desk types, a new combined ringing and charging machine of high current output, will furnish talking and ringing current for 200-line P. B. X. plant, or ringing and operators' current for the largest magneto exchange; the Automaphone in connection with a switchboard, 12-party harmonic ringing converter, standard 150-line switchboard. O. M. Leich, A. J. Kohn, A. C. Reid, J. A. Campbell, T. J. Gullion, N. E. Kester, W. A. Lankton, B. L. Parker, C. I. Echols.

*W. N. Matthews & Brother,* St. Louis, Mo., the "Matthews Atomatic Spragun" for treating poles with creosote oil, Scrulix anchors, Matthews boltless guy clamps, two-bolt guy clamps, Woodpecker telefaults, cable-splicing joints, Spoovel diggers, Holdfast lamp guards. Claude L. Matthews, W. E. Bischoff.

*Monarch Telephone Manufacturing Company,* Fort Dodge, Iowa, Standard No. 41-C type Monarch magneto switchboard with No. 120 arrester frame including switchboard arrester equipment, cable support, etc., Monarch No. 1 wire chief's test unit, two complete unit-type common battery switchboards, equipped with relay line circuits, sold to a customer in Italy. J. C. Hubacher, L. Q. Trumbull, A. W. Steinke, George O. Wilson, R. O. Palmer, Carl W. Snyder, G. W. Eslinger.

*National Carbon Company,* telephone storage batteries, new "Master Columbia" battery developed especially for telephone service. M. H. Moffett, E. F. Meyers, A. V. Ward, F. J. Kysela, I. J. Jacobsen, L. W. Fischer, W. E. O'Connor, C. W. Wilkins, C. M. Clifton.

*National Pole Company,* Escanaba, Mich., J. C. Kirkpatrick, H. W. Reade, J. Zeluff.

*Naugle Pole & Tie Company,* Chicago, samples of butt-treated poles, photographs of company's yards. W. G. Frostenson, L. E. Morier, A. A. Marrs, H. W. Mitchell, Hugh C. Stephens, J. B. Naugle, A. J. Naugle, E. L. Morier.

*North Electric Manufacturing Company,* C. H. North, F. R. McBerty, K. B. Miller, D. H. Ely. Connector and selector switches and parts of the latest form Automanual system, operator's desk and keyboard is used in 10,000-subscriber exchange at Lima, Ohio; all-relay small-exchange equipment adapted for private branch exchange or small branch exchange service, containing no progressive-movement switches of any kind.

*Page & Hill Company,* Minneapolis, Minn., views of yard and plant, sections of butt-treated poles. L. L. Hill, Buford Adams, St. J. R. Marshall.

*Edward A. Pratt Audit Company,* Peoria, Ill. Edward A. Pratt.

*Reliable Electric Company,* Chicago, self-cleaning lightning discharge blocks replacing carbons on main frames and cable terminals, self-cleaning telephone protectors, pole cable terminals, all types of arresters, fuses, sleeves. Wallace Cook, George Rodormer.

*John A. Roebling's Sons Company,* Trenton, N. J., W. H. Slingluff, Paul A. Nelson.

*Skinderviken Telephone Equipment Company,* Chicago, J. Skinderviken, Otto Krueger, Paul Schillne, Mrs. Gibson, Miss Mittel. Demonstrations of the Skinderviken transmitter button on telephones, phonographs, detectophones, etc.; one-reel film describing the button and the Skinderviken plant.

*Standard Underground Cable Company,* Pittsburgh, telephone cable, outside and inside wire, Colonial copper-clad drop wire and Colonial copper-clad bare line wire. W. M. Rogers, H. K. Weld, J. J. Hohmann, R. C. Houck.

*Stewart Brothers,* Ottawa, Ill., Stewart instruments for locating and clearing trouble, artificial telephone line and demonstration of Stewart test set, direct reading test cabinet, new Stewart cable tester, Stewart Detecto meter. Ed and Christ Stewart.

*Stromberg-Carlson Telephone Manufacturing Company*, Rochester, N. Y., complete central energy lamp signal multiple switchboard made up of latest unit type switchboard sections, all latest approved automatic circuit features, machine ringing, flashing recall, automatic listening and automatic coil registration; complete terminal and protector frame equipment, four-frequency harmonic ringing converter, several telephone lines; modern magneto central office equipment, Stromberg-Carlson No. 105 high efficiency magneto switchboard with overhead cable rack, protector and cross-connecting frame. No. 896 telephones connected to the switchboard. New standardized 50 and 100-line P. B. X. switchboards, new lamp signal cordless switchboard, small wire chief's testing equipment with testing voltmeter, telephone set and all necessary switching keys for making both qualitative and quantitative tests. W. Roy McCanne, George A. Scoville, W. M. Angle, Ray H. Manson, E. C. Rowerth, E. A. Hanover, S. O. Beyland, E. A. Reinke, W. C. Freeman, W. T. Powell, F. C. King, W. T. Eastwood, C. E. Heston, R. T. Pierson, A. M. Haurich, J. T. Barrett, J. H. Levis, N. W. Baldwin, C. W. Pointon, F. J. Buol, A. B. Crawford, M. D. Wood, A. J. Roberts, F. H. Lincoln, R. Davis, A. A. Cronk, Claude Mahon, A. B. Preble, A. M. Roberts, S. O. Vaughan, Price Winemiller, E. G. Fehrenbach, C. F. Sanders, J. B. Wilkinson, H. T. McCaig, E. L. Klingel, P. D. Myers, C. W. Schafer, A. Johnson, E. F. Barker.

*Templeton, Kenly & Company*, Chicago, No. 328 Simplex pole-pulling and pole straightening jack, No. 310 Simplex emergency jack for pulling light poles, Simplex jacks for automobile, motor truck, industrial and general utility use. H. B. Burlow, C. Losey, E. Carballo, N. A. Gibson, Miss Marie Breen.

*Telephone Engineer*, Chicago, Paul H. Woodruff, F. W. Schwamb, F. C. Sammons.

*Telephony*, Chicago, H. D. Fargo, John R. Hastie, Stanley R. Edwards, Miss L. M. Peterson, S. J. Borchers, Miss D. B. Sippil.

*Thompson-Levering Company*, Philadelphia, Pa., high grade testing sets and cable testing apparatus, T-L Peerless switch dial test set, standard plug type set, government standard test set, standard toll test board Wheatsone bridge for long distance line testing, standard 10-mile and standard 32-mile artificial cable, voltmeters, ammeters, new direct-reading ohmeter, a fault-finding test set and ohmeter, other types of Wheatstone bridges, portable galvanometers. W. J. Thompson, Dr. C. E. Vanter.

*Transmitter*, Fort Worth, Texas, J. A. Smith.

*Utilities Indemnity Exchange*, St. Louis, Mo., B. H. Batte, L. S. Brainerd, North Moore, T. N. Mehan, H. A. Hedding, Jr., J. Lester Williams.

## Hallett's New Steel Gain

The new steel gain that the Hallett Iron Works had on display at the convention has several good features. It does away with the cutting of gains for the cross arms, and so lenghtens the life of the pole to a great extent. It also does away with braces on the short cross arms. The gain is made of wrought steel and hot galvanized. It is made in three different sizes so that it will fit any pole.

Tightening up the through-bolt causes the struts on the gain plate to press against the pole. This causes the pole plate to grip the pole tightly.

The gain is perforated to allow the moisture to evaporate thus preventing the pole from decaying at this spot.

The gain grips the pole in such a way that it is possible for a man to stand on the end of a 5-foot cross arm. This feature was shown in the display at the convention.

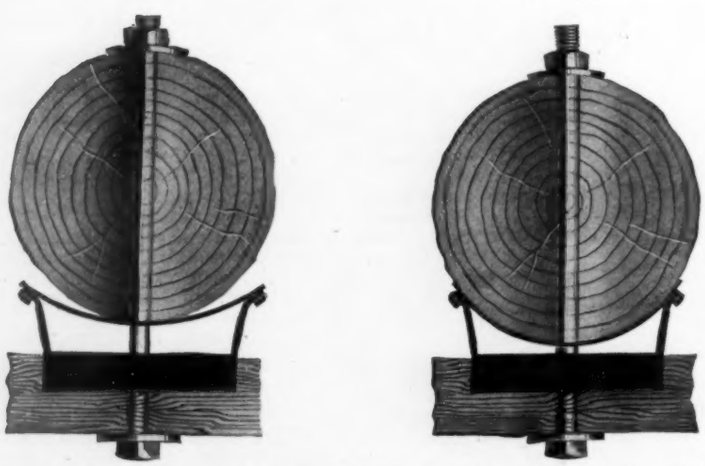
## Hershey to Edit "Automatic Telephone"

Another service star man has returned to Automatic Electric Company in the person of Harry E. Hershey, formerly lieutenant in the 352d Infantry of the 88th Division. Mr. Hershey saw two years' service, ten months of which were in France, being in the Alsace sector most of the time.

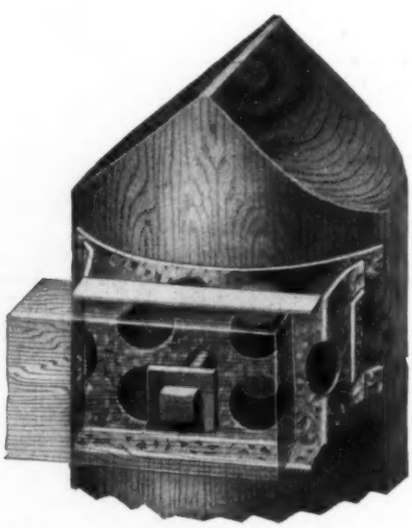
Mr. Hershey has rejoined the Automatic Electric staff as technical editor, being associated with N. B. Bartley, director of publicity, in editing *Automatic Telephone*, a publication which is graining international recognition as an authoritative exposition of automatic telephony.

Mr. Hershey comes to his new work with more than ordinary preparation and experience. Graduating from Kansas College in 1910, he entered the employ of Automatic Electric Company and after completing the student's course, engaged in installation and maintenance work, also in the patent department, and as an inspector-engineer.

During 1916 and 1917 he was loaned to the Tri-State Telephone and Telegraph Company, of St. Paul, Minn., where he conducted classes for the education of switchmen in automatic maintenance, and also demonstrations of automatic operation and service before business and technical organizations in the Twin Cities. Mr. Hershey is the author of "Automatic Telephone Practice," a hand book on automatic opera-



*Hallett's Steel Gain—Cross Section of Pole Showing Position before and After Tightening the Through Bolt.*



*A Phantom View of the Steel Grain in Place.*

tion and maintenance, the first edition of which was very well received and is entirely exhausted. A second edition, including considerable new material, is now in course of preparation.

## New Kellogg Automatic Interior Telephone System

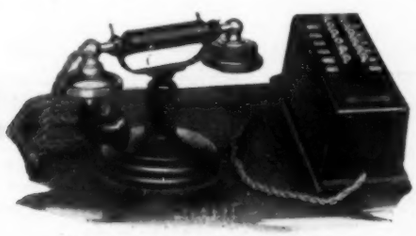
The value of telephone systems in factories, offices, stores, and homes is being appreciated as a money and time saver, more and more each day. Almost all large business houses have in use some form of private intercommunicating telephone system.

A new system has recently been put on the mar-

*Cover of New Catalog.*

ket by the Kellogg Switchboard & Supply Company, of Chicago, that is meeting approval. This system is very simple and does not require a central switchboard, a very valuable feature, as it also does away with the attendant necessary with most systems. The pressing of one button signals and connects the desired party and the hanging up of the receiver automatically clears the line. These systems can be had in either the desk stand, desk grabaphone, wall grabaphone or standard wall type telephone instruments.

The service of the Kellogg automatic interior telephone systems ranges from the common ringing and



*One Type of Secret Service Outfit.*

common talking sets, to the secret service type. The secret service is claimed to be the highest type of service possible to obtain for interior use.

There are many instances where the distances between telephones are too great to give good service from a central talking and ringing battery, and in such cases, the Kellogg automatic magneto interior system, it is contended, will give very satisfactory service. The equipment is a combination of the Kellogg standard magneto telephone for the regular interior type key boxes of the type of service selected.

The talking sets used with these outfits are Kellogg standard telephones and the small, compact key box which contains all the necessary mechanism is durably constructed and neat in appearance. The key is attached to its base by means of two wood screws and can be easily removed to make necessary repairs or additional connections.

On this page is reproduced a photograph of the

*Non-Secret Desk Telephone Type.*

cover of Catalog No. 4 which illustrates and describes in detail the operation of Kellogg automatic interior telephone systems. The Kellogg Switchboard & Supply Company will promptly forward a copy of this catalog upon request.

## Some Thrilling Advertising Films for the Local Theater

Nero was watching Rome burn. "Who are those birds crowding around that alley?" he demanded of a trembling attendant. "Fire fans, Sire!" And though that luckless menial probably never knew it as his head rolled off the parapet immediately the words were out of his mouth, he had labeled mankind.

Be-toga-ed gentry doubtless watched Rome burn from a more or less safe distance and the fire fan has been there, since history and fires began. We all, at heart are fire fans. The clang of the bell, the pounding of hoofs, now replaced by the rattle of enormous trucks, the smoke, the noise, start every man looking, then running; a fire fan.

So when you are at the movies, weary perhaps over sentimental mush or sleepy over watching how the natives of Timbuctoo make door mats, you sit up instanter when you see smoke. The instinct of the fire fan makes you shift to the other elbow—where there's smoke there's—then you see red on the screen; and you prick up your mental ears and watch.

Incidentally you remember what follows, though you soon forget the uneasy lovers and couldn't remember for the life of you where door mats come from.

It's just that way with a little picture that the Kellogg Switchboard & Supply Company had made up last year for its customers. Friend Willis and operating force helped get the local color at Janesville and it's there, as the boys say. Even Nero would watch that picture.

It helps any manager make his townspeople think better of his company's aim for good, efficient serv-

ice. It will likely help you, too, to get more business, this little fire story that shows the immense value of the telephone—in your town.

The Kellogg company has only a few prints and make only a nominal renting charge for the use of this film. It has a second film, too, a fine sketch on—not borrowing telephones. Both pictures are short and the real stuff—your local movie manager will be glad to get them to run. A request to the Kellogg Company will give full information.

## Adams and Gary Acquire Automatic Sales Business

The International Telephone Sales and Engineering Company, a new corporation headed by Theodore Gary and A. F. Adams, of the Kansas City Home Telephone Company, has acquired the sales business of the Automatic Electric Company, manufacturers and holders of basic patents of the automatic telephone. The automatic company will continue its manufacturing business.

The reorganization deal is reported to have been made on a basis of $125 a share for majority stock in the older company and minority holders will be offered the same terms. The new company, of which Mr. Gary will be chairman of the board of directors, with Mr. Adams as president, will have headquarters in Chicago.

## The Chance Company's Exhibit

The hundreds of visitors who thronged the corridors and rooms of the Hotel La Salle's 17th floor during the convention displayed an unusual interest in the "Never-Creep" anchor exhibited by the Chance Company, of Centralia, Mo. The extraordinary holding qualities of this anchor, so easily demonstrated and so readily understood by all who are familiar with the old fashioned "dead man," explained the attraction the display held for practical telephone men.

## Utilities Need Capital

It requires an investment of approximately $5 in plants and equipment upon the part of public utility companies in Illinois to bring about a return in yearly gross income, meaning sales, of $1. These figures, of interest to every business man as indicating the great amount of new capital the industry must constantly provide in order to keep pace with the growth of the state and adequately serve its 1,700,000 customers, were made public by the Illinois Committee on Public Utility Information.

The "turn over" of invested capital is much slower in the public utility industry than in any other line of business.

The merchant receives back over the counter in the form of sales the amount of his original investment on the basis of $3 to $10 per year for each $1 invested. Capital invested in the manufacturing industry is "turned over" from one to five times a year.

But in the public utility industry the outlay of capital for plants, lines, tracks and other equipment is so great that a return in the form of sales of but 20 cents per year on each dollar invested is the best that can be expected:

"Because of the extraordinary capital demands of the industry and the heavy investment necessitated in every community obtaining electric, gas, telephone, water and street railway service, it is clearly apparent that nothing must be done that will affect the credit of these companies," says the committee. "Unless the companies are treated fairly by the communities they serve they cannot go into the money market and obtain the funds necessary to keep pace with normal development and render the efficient service which every citizen has a right to expect.

"No industry makes as great a permanent investment toward the upbuilding of the community as the public utility industry. A rightly financed, properly managed and fairly regulated public utility company is as stable and enduring as anything that can be found in the business world.

"Supplying daily necessities more and more in public demand, growing as communities and industries grow, necessarily equipped with a large amount of valuable, tangible property, staked, tied to and embedded in the soil, these companies are urban and interurban fixtures. They have no years or seasons of shutdown, due to poor business, such as manufacturing enterprises must anticipate, for they must furnish continuous and unending service.

"The public utility industry investment in plants and equipment throughout Illinois, exclusive of telegraph companies and steam railroads, now totals over $950,000,000. The gross yearly income amounts to approximately $190,000,000, indicating the exceptionally slow 'turnover' of its invested capital.

"Electric, gas, telephone and street car additional needs of citizens of the state will require the investment of $450,000,000 of additional capital in the coming five years, the obtaining of this great sum of money from the investing public through the sale of securities being largely dependent, however, upon the degree of fairness exercised by the communities in their treatment of the companies."

## Radio Medal to Alexander

The wireless telephone was the accidental result of a search for something quite different—the wireless transmission of power. This was admitted at the May meeting of the Institute of Radio Engineers by E. F. W. Alexander, consulting engineer of the General Electric Company, in accepting the gold medal of the institute in recognition of his original research and inventions in the radio field.

Fessenden, said Mr. Alexander, conceived the possibility of sending power by radio waves. In the course of his work for Fessenden at the General Electric laboratories the transmission of the voice developed.

"Radio telephony," he said, "is a by-product of the sustained radio waves as a method of alternating current power telegraphy to reproduce speech from the transmission. With the previous system of spark telegraphy it was no more possible to transmit the modulations of the human voice than it would be in land dots and dashes of the Morse code."

## Automatic's Annual Conference

Seventy-five automatic telephone engineers and operating experts were present at the annual conference held on June 26 and 27 at the factory of Automatic Electric Company. Some 30 operating units were represented, located in all parts of the United States and Canada. The visitors were entertained at luncheon at the factory on Friday, and attended the Chicago-St. Louis ball game in the afternoon.

## Grand Rapids Merger Reports

Merger of the Michigan State and Citizens Telephone companies at Grand Rapids, Mich., is reported to be near, and those in close touch with the situation state that the details will be completed within a month or six weeks.

The stockholders, directors and officials of the two companies are not adverse to the merger, but thus far have failed to come together on the rates which, of course, will have to be advanced when the merger comes.

Elimination of competition will be accomplished through division of the territory and negotiations for such division, it is said, are well advanced as far as it concerns the Grand Rapids territory. The Citizens Telephone Company in the division will retain Grand Rapids, taking over the Michigan State property and subscribers. Outside of Grand Rapids, following the railroad lines, the Citizens, it is said, will have Hastings on the Michigan Central and all this side of Hastings.

The Michigan State will have all south of Grand Rapids on the Grand Rapids & Indiana railroad. The Citizens will have Allegan on the New York Central railroad and all this side. Holland and Grand Haven will be Citizens territory. Fremont, Whitehall and Newaygo will be Citizens territory north on the Pere Marquette. Greenville and Belding on the Pere Marquette east will be Citizens territory and so will Ionia on the Grand Trunk.

The dividing lines on the Grand Rapids & Indiana north and the Pere Marquette in the direction of Lansing, it is understood, have not yet been fully determined and will be subject to further negotiation. The Michigan State will surrender all the exchanges within the territory described and the Citizens will surrender to the Michigan State all its properties outside. Each will inventory the properties taken over or surrendered and the difference in value will be paid in cash or its equivalent. The division will be so made, it is expected, that there will be approximately an even break.

In the event of a merger by division of territory the two exchanges would be connected by trunk wires and universal service would be given, making only one telephone necessary. Gradually the Michigan State exchange would be absorbed and automatics would take the place of the Michigan State manuals. Considerable junking of materials and equipment would necessarily follow the complete merger of the two systems, but a systematic working out of the plans over a period of time, it is said, would reduce the waste to a considerable degree.

# Brevities of the Business

***The Activities of the Whole Telephone Field Told in Short Paragraphs***

*PERSONAL NOTES.*

Theodore N. Vail, twice president of the American Telephone and Telegraph Company, and in the thirteenth year of his second term, resigned at the monthly meeting of the company directors recently. He remains chairman of the board and in active direction of the policy and problems of the company. H. B. Thayer of New York, senior vice-president, and for nearly forty years identified with telephone operating from the manufacturing end, was elected president to succeed Mr. Vail. N. C. Kingsbury, who has had to do with both the operating and public relations, has been made first vice-president. N. C. Guernsey, the general counsel, has been made vice-president in charge of the legal department. John J. Carty, head of research, experiment, and development, has been made vice-president in charge of development and research. W. S. Gifford, who has long been connected with the company, has been made vice-president in charge of accounts and finance. Bancroft Gherardi, for many years Mr. Carty's chief aid, has been made chief engineer.

The Southwestern Bell Telephone Company has announced a change at Arkedelphia, Ark., to take effect immediately. John W. Carter, who recently returned from overseas with the signal corps of the 87th Division, will succeed J. G. Sigler as manager. The latter has been manager for several years. Mr. Carter is an experienced telephone man, having managed exchanges in several towns over the state.

J. D. Frank, a prominent young attorney at the Dallas bar, was recently appointed general attorney in Texas for the Southwestern Telegraph and Telephone Company. He succeeds the late Shirley English. Mr. Frank has been practicing law in Dallas for a number of years. He is a graduate of the State University. He is said to be one of the most able lawyers in Dallas.

Lloyd B. Wilson and R. A. Gant, both former residents of Omaha, have been promoted to be respectively general commercial superintendent and general superintendent of plant of the Nebraska Telephone Company and all other Bell Telephone Companies operating in Nebraska, Iowa, Minnesota, North and South Dakota. Mr. Wilson succeeds to the position made vacant by the promotion of Guy H. Pratt to vice-president and Mr. Gantt to the vacancy made by the promotion of A. A. Lowman to vice-president and general manager. L. B. Wilson has spent eighteen of his twenty years in the telephone business in Nebraska. Four years of this time he was stationed at Omaha. Mr. Gantt was three years in Omaha as district plant chief of the plant work in the territory around Omaha.

Charles F. Brooke, 62, vice-president of the Eaton National bank and president of the Eaton Telephone Company of Eaton, Ohio, died at the Miami Valley hospital, Dayton, recently, following an operation.

L. B. Wilson, division commercial superintendent of the Northwestern Telephone Exchange Company at Minneapolis, has been made general commercial superintendent of the Northwestern group of Bell telephone companies, according to an announcement made by officials of the company recently. R. A. Gantt, division plant superintendent, has been made general plant superintendent. Mr. Wilson succeeds Guy H. Pratt, who was recently elected vice-president. His offices will be in Omaha. Frank Bracelin, district commercial manager at Fargo, has been made division commercial superintendent, and H. P. Storkerson, district plant chief at Minneapolis, has been made division superintendent of plant.

H. R. Mason, of Saginaw, formerly district manager of the Michigan State Telephone Company, has been named district sales manager of the Buick Company at Washington. He will have charge of the wholesale department.

Gustavus A. Kositzky, valuation engineer of the Southwestern System, with headquarters in St. Louis, on May 1 was transferred to Chicago, where he was made chief engineer of the Central Union Telephone Company. The company includes all of Indiana, Ohio and Illinois, excluding Chicago, Cleveland, Cincinnati and that part of Illinois operated by the Southwestern.

The death occurred recently of M. Devaux-Charbonnel, enginer in chief of French Posts and Telegraphs. The deceased had written much on telegraphy and telephony, and he took a prominent part in the International Congress of Telegraph and Telephone Engineers which was held in Paris.

W. M. Woodhead has tendered his resignation as secretary of the Hamilton County Farmers Telephone Association at Aurora, Ill., to take effect July 1, when he will enter the employ of the Highland Grain Company at Grand Island as bookkeeper and all around office man.

J. E. Kennedy, of Sutton, Neb., is the new manager of the Lincoln Telephone and Telegraph Company of Plattsmouth, Neb., succeeding E. G. Brown.

H. A. Thomas, manager of the Grapevine Telephone Company at Grapevine, Texas, was instantly killed recently while pulling some telephone wires across a charged electric light wire. Walter Averett, an electrician, who also works for the company, was badly shocked, and narrowly escaped death.

C. H. Cayton has resigned as manager of the Southwestern Telephone Company at Wapahachie, Texas, and enlisted in the air service.

Miss Grace D. Banker of Passaic, N. J., was decorated with the distinguished service medal at Coblentz, Germany, for meritorious service. She kept the telephone system open during the operations against the St. Mihiel salient and north of Verdun.

Capt. Charles J. Glidden has been made chief of publicity of the United States air service, with headquarters in New York. Captain Glidden is a remarkable man. Although sixty-two years of age, he looks not a day past forty-five. He made the long distance telephone, built the first one and developed its use through advertising many years ago, while president of the New England Bell Telephone Company. Later he was president of the Bell Telephone Company in Texas, where he did pioneering work in telephone development.

John F. Brady has resigned his position with the Michigan State Telephone Company, with which he has been employed for the last 11 years.

Arthur O. Wyrick, of Indianapolis, signed a contract with the Home Telephone Company at Noblesville, Ind., to take the place of Walter Edson as superintendent, and Mr. Edson will go to Greenfield to assume charge of the plant there.

J. R. McDonald, formerly assistant secretary and assistant treasurer of the Nebraska Telephone Company and the other Bell Companies having headquarters in Omaha, becomes treasurer of the group of companies, according to an announcement made by President W. B. T. Belt. J. W. Christie, who has been secretary and treasurer, will be secretary only. Instead of the work as secretary and treasurer being under the direction of one man with an assistant, the job will be separated into two distinct departments. Mr. McDonald has been with the telephone company in Omaha for several years.

## *NEWS FROM THE FIELD.*

### ARKANSAS.

F. B. Murphy & Co. recently sold the Glenwood Telephone exchange to R. H. Jenkins of Center Point, Ark. Mr. Jenkins is an experienced telephone man, and will practically reconstruct and modernize the lines.

### CALIFORNIA.

High cost of labor and materials is the reason assigned by the Whittier Home Telegraph and Telephone Company for an increase in rates asked for in an application filed with the railroad commission. The company operates in Whittier and in adjacent territory in Orange and Los Angeles counties.

The Corona Home Telephone and Telegraph Company, which operates in Corona, Riverside county, and contiguous territory, has applied to the railroad commission for authority to increase its rates, basing its application on the increase in cost of labor and supplies since September, 1915, when the commission fixed the rates now being charged. The present rates are held to be too low to give the company a return on its investment.

### CANADA.

The directors of the Bell Telephone Company of Canada have voted to increase the paid-up capital stock of the company from $18,000,000 to $22,500,000. Stockholders of record May 26 may subscribe at par for one new share for every four shares held.

### ILLINOIS.

A petition was filed with the state public utilities commission recently by the Winslow and South Wayne Telephone Company to increase toll rates from Winslow to Freeport from five cents and ten cents to 15 cents per message.

A new ruling in telephone toll charges went into effect recently whereby no calls to Aurora may be made with reversed charges. The order which affects Batavia prohibits the reversing of charges on any call where the toll is five cents and on calls where the toll is ten cents, in order to have the charges reversed, the toll is raised to 15 cents.

Negotiations are pending for the merger of the Home Telephone Company at Rockford with the Central Union Company, thus effecting one system for the city. The home company will retire if the deal is consummated.

Application was made to the Illinois Public Utilities Commission by the Calhound Telephone Company of Hardin, the Merida Telephone System of Belleview, the Batchtown Telephone Company of Batchtown, and the Brussels Telephone Company of Brussels for authority to increase their license rate for telephone service 25 cents per month, provided that the 25 cents shall be deducted and not collected if the subscriber pays his license rate during the month for which the charge is made, but if the license rate is not paid during the month for which the charge is made then this increased rate is to be due and collectible.

The Blue Mound Telephone Company filed a petition with the Illinois Public Utilities Commission recently asking for authority to increase its rates at Blue Mound.

Within a month it is expected that Manager Clark of the local Bell telephone system will be able to make a definite statement as to when the Automatic system will be entirely absorbed by the Bell in Champaign-Urbana and there will be only one system in the two towns. The Bell company has been handicapped to a great extent by a number of their men having gone to war, but a dozen of them have returned and are at work in different departments and real progress is under way. The trunk line between the two plants is finished and other changes in wiring is progressing as rapidly as circumstances will permit.

Petitions protesting against the second application of the Central Union Telephone Company for an increase of rates was presented recently by the Rockford chamber of commerce to the Illinois Public Utilities Commission.

### INDIANA.

At a meeting of the Farmers' Mutual Telephone Company, which was held recently in Vevay, the directors voted to reorganize and equip the company for better and continued service. Each stockholder, of whom there are about 400, pledged himself to give $15 to establish a fund to be used for the refitting of the organizaiton. A change in the method of management was also made and, according to the new plan, all the lines will be consolidated under the direction of one superintendent with the main exchange in Vevay. The directors and stockholders feel sure that under the new arrangement satisfactory service will soon be built up.

An important meeting of the directors and stockholders of the People's Mutual Telephone Company at Wawaka was held recently. The question of buying a property for the linemen was under discussion, but was voted down. The following directors were all re-elected: Thomas Stigner, president; Clyde Stiffner, vice-president; Edward Ressler, William Butz and Lee Franks, directors, and Lyman Piggott, secretary and treasurer. A delegation from Tritapoo was present and asked that the line be extended to them, which will be considered.

At a meeting of the board of directors of the Community Telephone Company held in Columbia City recently the following officers and directors were elected: President, James D. Adams; vice-president, Albert Bush; Melvin Blaine, secretary; Mrs. Mary S. Magler, treasurer; E. E. Rindfusz, Adam Mullet, Fred F. Morsches. The new company will apply to the public service commission for a new charter and sanction of the merger. The capital stock of the new company will be $262,000. Quite a fight has been waged on the consolidation plans by some of the stockholders in the Farmers' Mutual Telephone Company and it is possible that some technical objections may be raised as to the proceedings. At one time the movement for consolidation had almost ceased, as it was claimed the first meeting of the farmers company at which they voted for consolidation with the Home telephone was illegal.

On account of strenuous objections by patrons, the Lochiel Telephone Company has discontinued the 10 cent toll to Remington and 5 cents to Fowler. It is said many threatened to take out their telephones if the company continued the toll charges. The company has asked permission to raise their rates to $2 per month and a hearing was held recently before the Public Service Commission in Indianapolis.

The Citizens Telephone Company of Clay county received notice from the state tax borad recently that its assessment had been raised to $215,000. This is an increase of 153 per cent over last year's assessment.

A complaint prepared by the Indiana public service commission in which it asks that the Seymour Mutual Telephone Company be fined $1,000 for failure to comply with a commission order to build an additional telephone line between Seymour and Crothersville was filed in the Jackson circuit court. The company was recently given permission to charge 5 cents per three minutes' call to Crothersville with the understanding that its present service would be augmented.

Merger of the two telephone companies operating in South Bend has practically been completed and on July 24 the city will be served with one telephone system operating the two exchanges. Both the Central Union and the Home exchanges will be operated by the Bell company with the Bell phone taking the main exchange and the Home telephone patrons taking the exchange name of Lincoln.

Plans are being completed whereby the Dunkirk Telephone plant becomes the property of Judges James S. Engle and J. A. Browne of Winchester. The consideration has not been made public, but it is said to involve several thousand dollars. The stock will be merged into the Eastern Indiana Telephone Company, which now owns the telephone exchange at Winchester, Lynn, Ridgeville, Farmland, Parker, Saratoga and Redkey.

Anderson may resist any attempt to raise telephone rates, and will ask investigation of the Central Union Telephone Company, according to a suggestion by Mayor W. J. Black.